Year 2000 work will cause many IS organizations to shelve other projects this year, new columnist Ed Yourdon writes. Managing, page 86

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Ice storm freezes operations

▸ *Outages force many businesses to scramble*

By Tim Ouellette and Thomas Hoffman

THE ASSOCIATED PRESS

Hydro-Quebec employees examine a transmission tower that collapsed during the ice storm in Canada

COLD TEMPERATURES are supposed to boost computer performance.

But the massive ice storm that recently blasted parts of New York, New England, Quebec and Ontario put a freeze on many computer operations in those regions.

That's because one- to two-week power failures forced many businesses to operate with skeleton staffs, shut down, move to remote disaster sites or rely on generators that in some cases are being used beyond their normal capacity.

There are cold, hard lessons to be learned for IT. Disasters can occur without major physical damage to computers, and you can never have enough generators, backup power systems and staffing strategies in place. The best plan should include building relationships with generator makers and disaster-recovery vendors so you are in priority order when disaster strikes, IT managers said.

Early estimates of overall residential and business losses are at nearly $1 billion in Canada and $200 million in the U.S.

The most pressing issue for many companies was the lack of information technology staff to keep computers and applications running, because of the number of roads closed by fallen trees, power lines and utility poles.

In Montreal, some downtown companies closed or ran on reduced power, while others let workers bring their families into the office for warmth because

Ice freezes, page 116

Labor confab issues call for training

By Julia King
BERKELEY, CALIF.

REGARDLESS OF how you cut the numbers, it comes out the same way: There simply aren't enough workers with the right skills to fill today's information technology jobs.

The situation spurred industry, government and academic leaders last week to jointly call for a big push on training to help resolve the IT labor crunch. The target audience isn't just at universities, but in elementary and high schools, at senior centers and unemployment offices and among the nation's poor.

"We must bring in fresh, new talent, because recruiting IT professionals today is a zero-sum game," said Gale Fitzgerald, CEO of $400 million CTG, Inc., a 5,900-person IT services

Labor confab, page 16

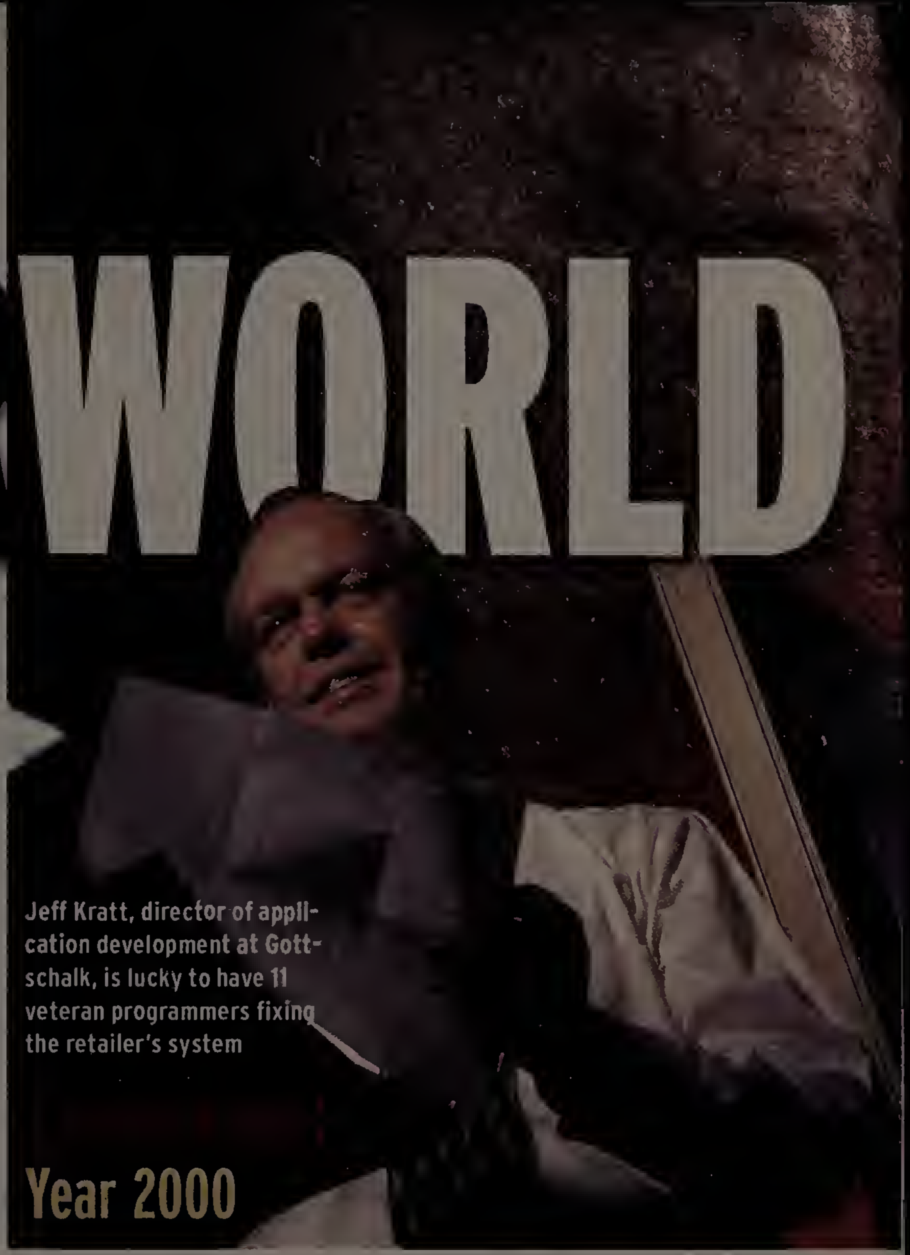
INSIDE THIS ISSUE

ALPHAS FOR THE PRICE OF INTELS
Digital to erase premium for Alpha boxes running Windows NT. Page 3

WALL STREET FOUND WAITING
Securities industry lags in year 2000 backup planning. Page 6

SAFE passage
Software industry backs bill to ease encryption restriction. Page 10

NO CREAM, NO SUGAR
Down and dirty with Sun's programming language. Pages 32, 33



BOB HOLMGREN

Jeff Kratt, director of application development at Gottschalk, is lucky to have 11 veteran programmers fixing the retailer's system

Year 2000

Preparing for your worst NIGHTMARE

It's painful to think about failure. But some prudent companies are bravely developing contingency plans in case — despite their best efforts — something goes wrong with one of their information systems on Jan. 1, 2000. A Washington state agency, for example, has a commercial accounts payable package on the shelf as a backup, just in case the overhaul of its legacy system doesn't work.

Computerworld's special report also includes an analysis of date simulation tools and a look at the highly competitive market for year 2000 project staffers. **Special Report, page 77**

By Sharon Machlis **The Super Bowl** has become one of America's **most important** media and marketing events, and the Web's **major sports sites** don't intend to be left out. They're planning a **blitz of programming** to attract customers to **the Internet.**

ERIC YANG

Super Bowl, page 14

NEWSPAPER

UP FRONT

Y2K survival

The passing of 1997 marked a milestone of sorts in year 2000 preparedness. Experts say companies that don't already have a plan in place to fix the millennium problem probably won't make it (see stories, page 6).

Surprisingly, an awful lot of companies continue to whistle past the graveyard. Of 108 Fortune 500 IS managers interviewed recently by Rubin Systems, Inc. and Cap Gemini America, 80% said they don't have a full-fledged year 2000 strategy in place. And just as many said they've underestimated the cost of fixing the problem.

Sadly, the window to do that cheaply or easily is now closed. The first companies to get a handle on the year 2000 started around 1996 and expect to beat the deadline by only a year. And if you're still hiring people, good luck. Cobol programmers can get $1,500 per day in some places, and that fee may double over the next 18 months.

This week's special report, which begins on page 77, turns to the emerging issue of contingency planning: what to do when you don't make it. We also look at how to avoid a staffing panic and examine some tools that test changes you've already made.

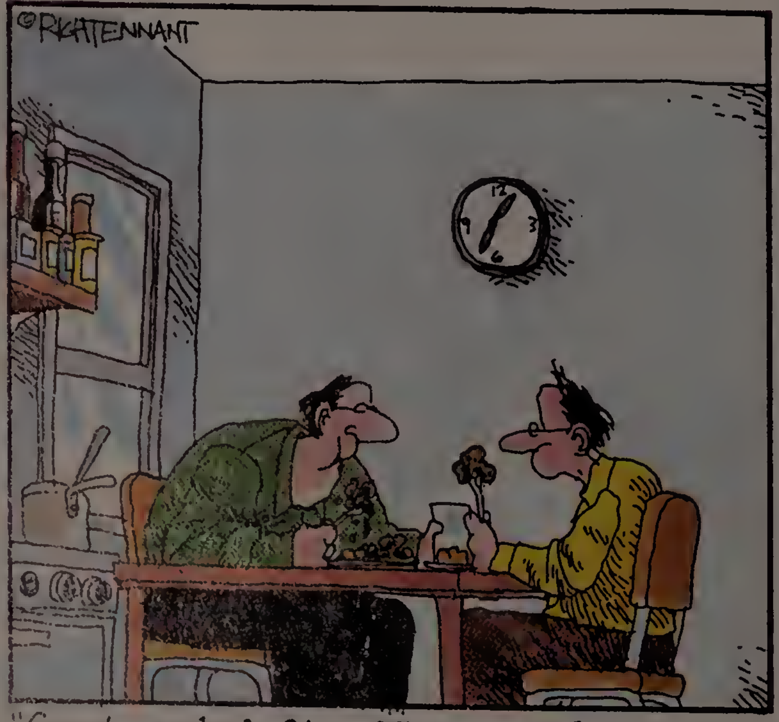
If you're still hiring people, good luck.

In particular, I'd call attention to the opinion column by Ed Yourdon, who joins us as a monthly columnist this week. Yourdon suggests that IT organizations declare a moratorium on new development until they get the year 2000 problem fixed. Them's fighting words for IT leaders who would rather think of themselves as partners in business re-engineering than code fixers. But it's also good common sense.

The year 2000 problem, like a noose, focuses the mind. Organizations that had the foresight to tackle the problem two years ago are now enjoying the luxury of being able to proceed with more strategic matters. Those who waited are entering crisis mode. A lot of new development is going to get put on hold this year, whether we like it or not.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT



"Great goulash, Stan. That reminds me, are you still scripting your own Web page?"

E-mail Rich Tennant at the5wave@tiac.net

Cabletron rethinks 'unrealistic' pricing

▸ *Reorganization spurs reassessment; E-commerce site eyed*

By Bob Wallace

CHEAPER PRICING may be on tap for Cabletron customers.

In the wake of a reorganization, which will be detailed this week, new CEO Don Reed said the Rochester, N.H., switch maker is rethinking its pricing structure and gearing up to launch an electronic-commerce site.

"Our list pricing is unrealistic, [so] we're re-evaluating our entire pricing system," Reed acknowledged in an exclusive interview with *Computerworld* last week. "The reason we're doing this is we're running into more price-competitive bids."

The pricing re-evaluation will be completed in the next three weeks, Reed said. He didn't provide additional details.

WELCOME NEWS

The reassessment is welcome news to analysts and customers of Cabletron Systems, Inc., who said the company's list prices are as much as 50% higher than those of rivals Cisco Systems, Inc., 3Com Corp. and Bay Networks, Inc.

"You need to get 50% discounts to get the pricing close to where it should be," said Edward Bianco, chief information officer at Lowell General Hospital in Lowell, Mass. "You waste a lot of time negotiating discounts, and it's a real pain for their salespeople. We should only have to go back and forth once or twice."

"Cabletron comes in at 20% to 30% above the rest of the world on list prices," said John Morency, an analyst at Renaissance Worldwide, Inc., a Newton, Mass., consultancy. "Given that all the big players offer similar discounts, Cabletron keeps coming out on the high side."

CONTRACTS AFFECTED

The high list prices concern some Cabletron users.

One user said the high list prices have a negative effect on service contracts, which he said are based on a percentage of the list price paid for equipment.

"It makes it hard and expensive to do service contracts," said Marc Sayer, a network systems engineer at Heidelberg Harris, Inc., a printing press maker in Dover, N.H. "Since we have limited dollars for service contracts, it can force me to take products off these contracts. I have to decide whether or not we can afford a device to go down."

List prices for Cabletron products are 15% to 25% higher than their main competitors, he said.

Not surprisingly, analysts said high equipment list prices have kept Cabletron from winning accounts as price competition becomes fierce.

Cabletron ranked a close third in sales of Ethernet switching last year, with 14% of the $4.8 billion market, according to the Dell'Oro Group, a Portola Valley, Calif., research firm. Cisco led the Big Four with 37%, followed by 3Com with 16%.

"It has locked them out of some business, more lately than in the past," said Craig Johnson, an analyst at Dataquest in San Jose Calif. "If a vendor starts with high list prices, they have one strike against them with users, who want list prices to be very competitive." □

& Cisco unveils family of flexible switches. Page 53

E-commerce move applauded

On the customer support front, Cabletron CEO Don Reed said the company is testing an electronic-commerce site that will enable users to buy, get pricing and submit configurations for the vendor's products online.

"The goal is to make it easier to do business with Cabletron," Reed said.

Ron Rimmer said the electronic-commerce system is a good move for Cabletron.

"This should streamline several processes and facilitate cost control," said Rimmer, network manager at Wake Forest University in Winston-Salem, N.C. "Anything that reduces paperwork would greatly benefit us. It sounds like a big plus."

As part of the company's reorganization to be announced this week, Cabletron will create a business unit to develop and sell products to telephone companies and Internet service providers.

And Chris Oliver, director of engineering, has been promoted to chief technology officer.

— Bob Wallace

SETH AFFOUMADO

Wake Forest's Ron Rimmer: "Anything that reduces paperwork would greatly benefit us"

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Digital to launch NT-only Alphas

▸ *Lower prices target resistant users*

By Jaikumar Vijayan

DIGITAL EQUIPMENT CORP. is developing a line of Alpha-based Windows NT servers that for the first time will offer near price parity with Intel Corp.-based systems.

The idea is to lure more users to Digital's Alpha microprocessor platform by removing the entry-price barrier that has kept all but the most performance-conscious users out of the Alpha fold.

Alpha products previously cost 20% to 30% more than comparably configured Intel systems.

Digital's newest servers, which are slated to be announced next week, will feature a slightly tweaked version of the Alpha chip, modified to run only on Windows NT, said Terry Shannon, editor of "Shannon Knows DEC," a newsletter in Ashland, Mass.

Alpha firmware, required to boot OpenVMS and Digital Unix, is being removed from the latest version of the chip as part of Digital's attempt to position it as a Windows NT-only product, Shannon said.

MORE POWER

Digital's Alpha-based NT systems offer significantly more raw performance than Intel-based servers.

By lowering prices, Digital hopes to attract more performance-hungry users who have stayed away from Alpha because of the price, said Joseph Ferlazzo, an analyst at Technology Business Research, Inc., in Hampton, N.H.

This is the first time Digital has tweaked an Alpha chip to exclude the OpenVMS and Digital Unix operating systems.

Digital's moves come at a time when it is struggling to grow Alpha product revenue. In its latest quarter ended Dec. 27, Alpha server revenue grew by a mere 2% over the same period the previous year, while workstation revenue dipped by 27%. ☐

JOHN SOARES

What's the coolest place to hang out online?

For Gen-Xers, it might be www.tripod.com, a Web community that attracts more than 2 million visitors per month and a list of blue-chip advertisers that lust after its tasty demographics. Tripod's Don Zereski and Margaret Gould-Stewart tell how Tripod did it. The Internet, page **49**

3Com smashes switch price barrier

By Bob Wallace

3COM CORP. this week will announce aggressively priced Gigabit Ethernet switches designed to make the new high-bandwidth technology more affordable for implementation in corporate data networks.

Two new switches will shatter the industry's $2,000-per-port price ceiling for Gigabit Ethernet-only switches by as much as 37%, said analysts briefed by 3Com. The company's SuperStack 9300 family comprises two models: a 10-port Gigabit Ethernet switch at $1,375 per port and a 12-port system at $1,249 per port, sources said.

"The Gigabit Ethernet switch pricing will make it much easier for users to justify adding the technology to their networks," said one of the analysts briefed, who requested anonymity. "It makes 3Com the first of the Big Four to announce a low-cost all-Gigabit switch."

The Santa Clara, Calif., networking company is expected to fuel wider deployment of Ethernet switching to the desktop with the SuperStack 1100, which has 24 ports at $77 per port. It has two 100M bit/sec. uplinks. That is the lowest price per port of the top four switch makers, analysts said.

3Com will keep pace with Cisco Systems, Inc. on the 10M/100M bit/sec. switch front with the SuperStack 3300, a 24-port unit priced at $175 per port, and the SuperStack 3900, which can support up to 36 ports and costs $243 per port. The 3900 can be equipped with a $1,995 Gigabit Ethernet uplink. ☐

Microsoft/Digital pact takes shape

▸ *Move will expand NT, Alpha features*

By Laura DiDio
and Jaikumar Vijayan

LATER THIS month, Microsoft Corp. and longtime ally Digital Equipment Corp. are expected to announce more details on their efforts to port a 64-bit version of Windows NT to Digital's Alpha platforms.

The moves are part of an expansion of Digital and Microsoft's ongoing Alliance for Enterprise Computing initiative, which was launched in August 1995. They give Microsoft another shot at leveling the playing field between Windows NT servers and the more powerful high-end Unix machines.

CLOSER TIES

Microsoft and Digital last week confirmed that they will expand their relationship but didn't elaborate.

The announcement reportedly will focus on delivering new performance clustering and high-availability technologies on Digital's Windows NT server product lines.

Microsoft and Digital also are expected to announce plans for integrating support for Very Large Memory and Very Large Database technologies on 64-bit Alpha-based Windows NT servers.

Digital also is working on fortifying its Windows NT offerings with enterprise-oriented World Wide Web applications that borrow heavily from OpenVMS technology, according to the latest edition of "Shannon Knows DEC," a newsletter in Ashland, Mass.

ONLY THE BEGINNING

Noting that Microsoft has pushed back delivery of Windows NT 5.0 until at least year's end, Jon Oltsik, an analyst at Forrester Research, Inc., in Cambridge, Mass., said he expects that the forthcoming Digital/Microsoft announcement will be the first of many such events initiated to market Windows NT as an enterprise operating system. ☐

Microsoft and Digital will expand their current alliance and deliver:

- A version of Windows NT that runs on Digital's 64-bit Alpha machines
- New performance clustering and high availability
- Integrated support for Very Large Memory and Very Large Databases

Judge keeps special master

By Carol Sliwa

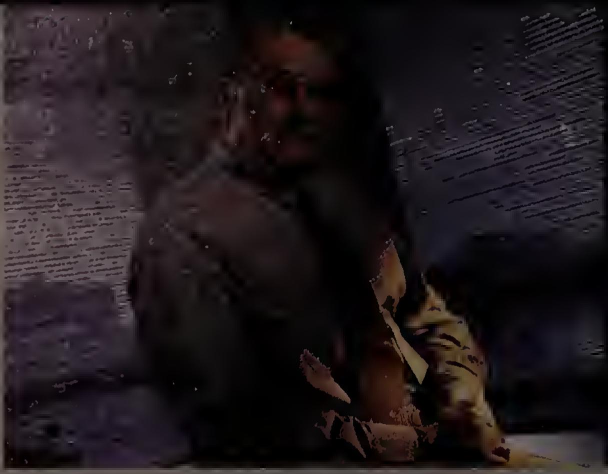
FEDERAL JUDGE Thomas Penfield Jackson last week abruptly rejected Microsoft Corp.'s motion to remove the special master he appointed to issue findings in the case. He also interjected several pointed questions to Microsoft representatives at a hearing in Washington.

At issue was the judge's preliminary injunction ordering the company to "cease and desist" licensing its Windows operating system on the condition that "the licensee also license and pre-install" Microsoft's Internet browser.

"[It seemed] absolutely clear that I entered an order that you should distribute a product that wouldn't work. Is that what you're telling me?" Jackson asked Microsoft Vice President David Cole.

"In plain English, yes," Cole answered. He said the company followed the order.

Microsoft and the Justice Department must file briefs that summarize the facts of the case and are due in court Thursday for closing arguments. ☐



Sun Chemical put a user-friendly tool in the hands of Dave Fritz, its nontechnical warehousing manager. Data Warehousing, page 71

Charles Schwab's Ed Ehrgott says SET 1.0 might be enough security online. The Internet, page 49

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ETC.

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Microsoft bundling hits Netscape Web servers

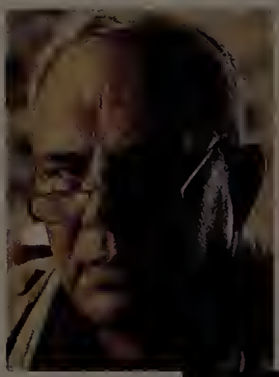
▸ *Battleground changes; tactics remain the same*

By Carol Sliwa

MICROSOFT CORP. has been attacking rival Netscape Communications Corp. on the Web server front with the same bundling tactics that worked with its Internet browser.

Just as it bundles Internet Explorer with Windows 95, Microsoft is bundling Internet Information Server (IIS) with Windows NT. Netscape sells its browser and server as standalone products.

Netscape officials blamed the company's expected fourth-quarter loss on declining browser revenue, and CEO Jim Barksdale has argued that Microsoft puts more financial pressure on his company by giving away its World Wide Web browser. But the company is under siege in the Web server market, too.



RHEA RIPPEY

Because Netscape doesn't break out server revenue by individual types, it is difficult to gauge the financial impact of Microsoft's strategy.

But according to a poll of 1.8 million Internet-accessible servers by Netcraft Ltd., a U.K.-based network consultancy, Microsoft has overtaken Netscape as the leading commercial vendor of Web servers.

Two years ago, Netscape dominated that area, but the latest results show Microsoft with a 21.7% market share and Netscape with 10.5%. Netscape officials pointed out that the company's major focus is intranets and complained that the Netcraft survey can't poll intranet Web servers that sit behind company firewalls.

The Mountain View, Calif., software maker pointed to two other surveys conducted by industry consultancies that show that it still leads the combined Internet/intranet Web server market space. Netscape also argues that its server has advantages over Microsoft's. "Most corporate buyers need more sophisticated products than just the bundled IIS. That's actually not a very scalable product," Barksdale said.

But Microsoft clearly has been making inroads at the low end of the market with users of its operating system software.

NASA/Marshall Space Flight Center, in Huntsville, Ala., is an early adopter of Microsoft products, so it was natural for users to test and then use IIS.

"We threw it out there because we had it and it worked," said J. Briscoe Stephens, advanced scientific information systems coordinator at the center. He said he also likes the benefits of tight integration.

Stan Lepeak, an analyst at Meta Group, Inc., in Stamford, Conn., said, "Microsoft has made entry level very appealing from a cost standpoint. I don't think Netscape can compete at the low end of the market."

Netscape hasn't been oblivious to the need to broaden its offerings and has added a variety of new enterprise-oriented server offerings, including directory, messaging and collaboration. But company officials said the groupware/messaging market has been tough.

> "We threw [the IIS] out there because we had it and it worked"
> – J. Briscoe Stephens, NASA

Still, Netscape should remain a strong competitor. "Netscape's brand and visibility with MIS shops is even bigger than the company itself. They aren't going to go away overnight or anytime soon," said Jamie Kiggen at Cowen & Co., a financial consultancy in Boston.

Heather Ashton, an analyst at Hurwitz Group, Inc., in Framingham, Mass., agreed: "Netscape has done a pretty good job of making some pretty large enterprise sales, despite Microsoft being there with NT." □

& **Netscape can't win on two fronts against Microsoft, David Moschella argues. Page 117**

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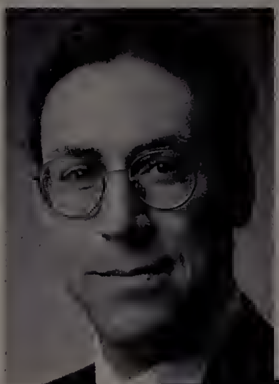
SIA: Millennium backup planning lags

▸ *Agency commits to devising preventive strategy*

By Thomas Hoffman
NEW YORK

YEAR 2000 experts say Wall Street is, in many ways, at the forefront of dealing with the so-called millennium bug.

But securities industry executives acknowledge they have barely begun to devise backup plans in case their year 2000 fixes don't work (see related stories, pages 1 and 77).



SIA's Charles Costa: The securities group is starting to form a subcommittee to consider different year 2000 disaster scenarios

The securities industry is just starting to assemble fallback plans in the event that tightly interwoven interfaces and systems among brokerages, stock exchanges and clearinghouses should fail, said Charles Costa, chairman of the Securities Industry Association (SIA) year 2000 conference held here last week.

Because of the complex data links and settlement requirements, disaster planning will be particularly vexing for the financial services industry.

The sector "is one of the most co-dependent industries in the world," said Irving Weiser, chairman of the SIA in New York, and chairman and CEO of Dain Rauscher, in Minneapolis.

The potential for disaster in the securities industry is frightening. For example, the date-related failure of a small clearinghouse that settles as little as 3% of the foreign exchange market could lead to $5.2 billion in total market costs, according to research by Computer Sciences Corp. in El Segundo, Calif.

Costa, who is also the year 2000 program director at J. P. Morgan Securities, Inc. in New York, said the SIA is just starting to form a subcommittee whose charter will be to dream up different disaster scenarios that could affect industry players, from investment bankers to stock exchanges.

CONTINGENCIES

Another SIA subcommittee is coordinating industrywide system testing and will select a member company this week to act as a testing coordinator for the industry.

The selected company will devise what-if scenarios and create an action plan "in case the New York Stock Exchange goes down," for example, said Dawn Lowell, senior vice president at Lehman Brothers, Inc. and a subcommittee member.

The SIA also expects to decide this week whether to lobby the federal government to make Friday, Dec. 31, 1999 — and possibly Jan. 3 and Jan. 4, 2000 — "securities trading holidays" to give firms some breathing room, Weiser said.

If SIA goes in that direction, the Federal Reserve Board "should get behind it," said William J. McDonough, president and CEO of the Federal Reserve Bank of New York.

Year 2000 consultants said securities firms should examine their business processes and identify work-arounds in advance in case those processes fail.

For example, if a computer system used for taking customer stock orders goes down, the brokerage should determine if it can switch to a paper form, said Thomas P. McAndrew, managing director of Computer Sciences' year 2000 national practice in Lexington, Mass.

Whatever the scenario, industry officials agreed they had better get cracking.

"We manage the lifetime savings of clients. This is a do-or-die issue," Weiser said. ☐

BUILDING A BACKUP PLAN

Tips from year 2000 guru Bill Ulrich

Identify events – by business unit – that may adversely affect business functions

List failure scenarios that may affect a system or third-party linked to those functions

Assess damage that these events could cause as failure dates come and go

Rank events from most catastrophic to least, based on financial, legal or regulatory risks

Examine odds of each high-impact event occurring and rank most probable to least probable

Eliminate low-probability/low-impact events from the list

Source: Tactical Strategy Group, Inc., California

Consultant encourages year 2000 snitching

▸ *Project collects tipoffs on date-change slackers*

By Thomas Hoffman

SNITCHING ON year 2000 slackers may be one way to force the nation's businesses and service providers to take the date-change issue seriously, but critics caution that the idea has its drawbacks.

Peter de Jager, a prominent year 2000 consultant, has launched a service designed to let tipsters anonymously blow the whistle on companies that are ignoring year 2000 problems.

The service notifies the companies in question and maintains the data, which will be later made available if a court case results from an informed company's decision to not act upon the millennium threat (see related story at right).

The nonprofit service, Project Damocles, isn't intended to publicly expose year 2000 laggards, according to de Jager, but rather to notify a company's legal department that the firm might be exposing itself to a potentially serious problem.

"Damocles succeeds if not a single lawsuit can be pressed in the year 2000," de Jager said.

SMALL PROBLEM

Millennium gurus said the Canadian consultant's intentions are honorable, but the service is flawed.

For example, there is no way to filter out disgruntled employees who "could fog up the network with accusations that may not be true or accurate," said Lou Marcoccio, an analyst at Gartner Group, Inc., in Stamford, Conn.

In those situations, some companies could end up wasting valuable time chasing down dead-end leads, said Joe Boivin, founder of The Global Millenium Foundation, a nonprofit millennium program office for Canadian businesses and government agencies in Ottawa.

"The process doesn't leave a whole lot of room for verification," said Boivin, who left his post last month as the year 2000 program director at Canadian Imperial Bank of Commerce in Toronto.

De Jager acknowledged those issues, but he said the flip side is that companies will be able to snuff out unfounded rumors about their products or services that might otherwise erode customer confidence.

Others were more upbeat.

"I think it's great. If there's a bug somewhere, the sooner I know about it, the better," said Steven McManus, communications manager for the millennium project team at BankBoston, in Boston.

De Jager said he decided to launch Project Damocles after wrestling with the several "dark secrets people tell me about their company's" year 2000 problems — secrets, he said, that if left unattended, could lead to loss of life.

Peter de Jager hopes Project Damocles will force laggard companies to take the millennium threat seriously

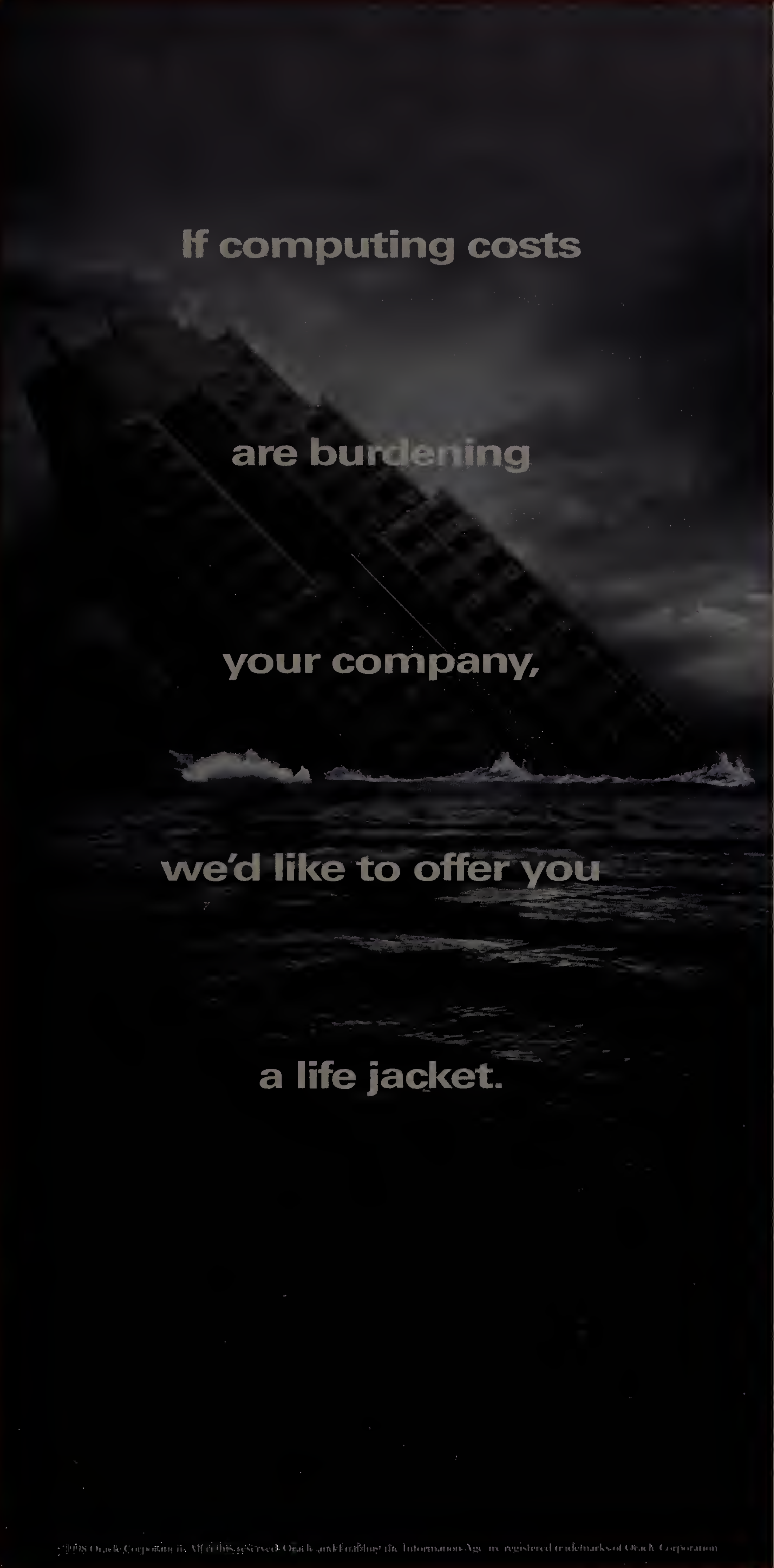
Those include heart-monitoring equipment used in hospitals that could fail if year 2000 compliance is not corrected, and a process controller in a chemical factory that could shut down a valve and cause an explosion.

"It's not that I'm legally responsible, but I'd feel weird if something unfortunate happened," said de Jager, who works out of Brampton, Ont. ☐

Project Damocles

Here's how de Jager's service will work:

- If someone has firsthand knowledge of a system that has failed or is expected to fail, and the system manufacturer or employer refuses to fix it or address it publicly, then the whistle-blower should E-mail that information to *www.year-2000.com/y2kdamocles.html.*
- Information submitted to Damocles will be sent to that company's legal department (with the submitter's name withheld) via registered mail. A copy will be kept by de Jaeger's attorney.
- Should the reports turn out to be true — and inaction by the offending company leads to year 2000-related problems and lawsuits — then a copy of the report will be released to lawyers as part of the discovery process. — Thomas Hoffman



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FRANKLY SPEAKING

ITAA 'Blue' it

FRANK HAYES

Teenagers think IS people are geeks. (Some surprise, huh?) And according to educators, that nerdy image is scaring students away from high-tech careers [CW, Jan. 12].

Unfortunately, government and high-tech industry leaders seem to be in a big rush to prove that those teenagers are absolutely right.

Consider the bizarre case of the Jimmy Smits video.

As part of a new campaign to help fill hundreds of thousands of empty seats in IS shops, the White House and the Information Technology Association of America announced last week that thousands of copies of a video starring television actor Jimmy Smits will be distributed to high schools and colleges.

The video, which was produced by Microsoft, was designed to glamorize computer-related jobs. "It's going to show that it's a hip line of work," says ITAA President Harris Miller.

Hip? *Hip?!?*

Valuable and important? Sure. Fun and exciting? Sometimes. But let's face it: Nobody, but *nobody*, is stupid enough to think IT is hip, glamorous or cool because of a Jimmy Smits video. Least of all high school and college students.

The video is a clueless stunt by a bunch of geeks trying to look hip.

Smits isn't a programmer, he's an actor. A good one, to be sure. But these kids aren't about to be sucked into the idea that a computer-science education is hip just because a TV star says so. Heck, Smits doesn't even play a programmer on TV. He plays a cop on "NYPD Blue" and used to play a lawyer on "L.A. Law." Both those jobs sound a lot more exciting to most kids than writing software or running networks.

What's worse, any kid who checks out how much respect high-tech people get in the real world will discover what we all learned long ago: Most businesspeople think techies are clueless geeks who serve as little more than highly paid computer mechanics and network janitors. Glamorous these jobs ain't.

In other words, the video is baloney — a dumb, clueless stunt by a bunch of geeks trying to look hip.

And the really sad thing is that the ITAA and the White House believe the stunt is the only way to get students to consider high-tech careers.

What's the alternative? How about putting together an army of real techies to talk up technology to students?

Most IS people, contract programmers and consultants aren't hopeless dweebs. They're regular people who like their jobs and are proud of their work. They play in rock bands, go skiing, watch sitcoms and party with friends.

In short, they're the best evangelists technology could have, and they're exactly the people who should be spending time with kids who are thinking about what to do with their lives.

Want to do your bit to ease the IT labor squeeze and improve the image of IS people at the same time? Forget about the ITAA and its sham-glam videos. Scan the ranks of your young IS employees. Pick out the best talkers. Then send them off to pitch high-tech careers to college and high school and even grade school classes.

You won't get results fast enough to solve your short-term labor shortages. It takes time for high school kids to turn into computer-science grads. But you'll get the wheels turning to keep those shortages from getting a lot worse.

Besides, if you wait for Jimmy Smits videos to deliver the people you need, you could be waiting a long time.

And if you wait for someone else to convince the world that IS people aren't geeks, you'll be waiting much, much longer. ☐

Hayes is Computerworld*'s West Coast bureau chief. His Internet address is frank_hayes@cw.com.*

SHORTS

More delays for Domino, Notes

Sources at Lotus Development Corp., in Cambridge, Mass., last week confirmed that the company will further delay delivery of its Notes and Domino 5.0 upgrades. The new client and server versions have already been pushed back from early this year to midyear. At the end of this month, when the company officially announces the products at Lotusphere [CW, Jan.12], it will tell customers not to expect them until the later part of the third quarter.

Ready, SET, purchase

NationsBank Corp. completed what is believed to be the first U.S. bank test of the Secure Electronic Transaction 1.0 (SET) protocol when a vice president purchased a $3.95 calculator from a MasterCard site earlier this month. Employees of the Charlotte, N.C., bank will continue testing SET, which is aimed at making Internet transactions more secure. Bank officials later this year expect to offer wallet software and digital certificate services to customers using SET.

Sun posts profit gains

Sun Microsystems, Inc. recorded quarterly gross profits of $223.2 million, a 25% increase from the same period a year earlier, on revenue of $2.45 billion for the quarter ended Dec. 28. Revenue was up 18% over the $2.08 billion reported for the same period the previous year. Sun took a onetime charge of $110.1 million related to its acquisition of Encore Computer Corp.'s storage business.

Unisys takes $1.1B charge

A onetime charge of $1.1 billion against earnings caused Unisys Corp. to report a loss of $856.6 million on revenue of $1.9 billion for the quarter ended Dec. 31. Unisys made a profit of $43.6 million on revenue of $1.81 billion in the same period a year earlier. Unisys said the charge included a write-off of $884 million related to the 1986 merger of Burroughs and Sperry, and a $127 million charge related to its exit from the PC business.

Pieper leaving Compaq

STEVE BORNS

Six months after he helped engineer the merger of Tandem Computer Corp. and Compaq Computer Corp., former Tandem CEO Roel Pieper said last week he is quitting as a Compaq senior vice president. After the June merger, Pieper's role was to help integrate the companies' technologies, which include Tandem's fault-tolerant servers and Compaq's desktops and PC servers, and to direct the companies' combined sales forces.

Microsoft IE bundle scrutinized

The Japanese Fair Trade Commission is probing Microsoft's bundling of its Internet Explorer Web browser with its Windows 95 operating system. Japanese officials also are looking into a Microsoft package offered to PC makers in Japan that bundles a word processor and a spreadsheet program.

Sailor: Navy asked, AOL told

A sailor has sued the U.S. Navy over a discharge he said was sparked by personal information about him handed over by America Online, Inc., in Dulles, Va. The lawsuit accuses the Navy of illegally obtaining information linking the sailor, Senior Chief Petty Officer Timothy R. McVeigh (no relation to the convicted Oklahoma City bomber) to an AOL screen name that listed his marital status as "gay." The discharge has been delayed until a hearing Wednesday in a U.S. District Court.

Groundhog Day for IT pros

The Department of Education has set aside Feb. 2 as "National Shadow Day," when students and other young people will follow information technology workers on the job to learn first-hand what it is like to be a programmer, systems analyst or IT project manager. Announced at last week's National IT Workforce Convocation in Berkeley, Calif., Shadow Day aims to replace young people's image of IT professionals as nerdy with a more realistic idea of the IT profession.

Special offer on NDS for NT

Novell, Inc., in Provo, Utah, last week initiated a special 25 % discount from now through the end of April for its newly released Novell Directory Service (NDS) for NT software package. NDS for NT provides businesses with interoperability for their IntranetWare and Windows NT networks by letting Windows NT users be managed via the NDS tree, according to company officials.

SHORT TAKES Microsoft said it will provide NT 3.51 and NT 4.0 with the same set of utilities, including file migration and directories utilities, to help users migrate to Windows NT 5.0.

ERP users find competitive advantages

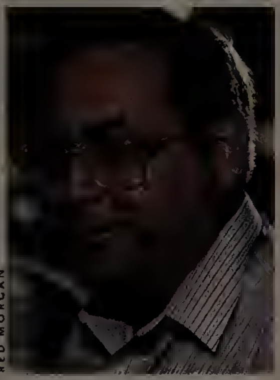
By Randy Weston

AT A TIME WHEN "everybody's doing ERP," users say they can still gain a competitive business advantage from implementing mammoth, "vanilla" enterprise resource planning (ERP) systems such as SAP AG's R/3.

ERP users can gain competitive advantage from the way they implement the systems and exploit the resulting data. Also, users say the systems can make them more nimble in the marketplace than companies with hard-to-change custom programs.

ERP systems are business tools, said Jim Shepherd, an analyst at Advanced Manufacturing Research, Inc., in Boston. "They are tremendously advantageous in the hands of someone who knows what to do with them, but they can be dangerous in the hands of someone who doesn't."

Users find that the biggest gain from ERP packages is that they force a company to institute a proven set of business processes, rather than reinvent the wheel. "One of the big advantages of packaged applications is that as the state of the art moves, you move with it," said Martin Richie, director of the ERP competence center at Boeing Commercial Airplane Group, in Seattle.


RED MORGAN

Deere & Co.'s Bob Towner: Simply having the ERP systems is a competitive advantage

Richie said that with a packaged application, users can concentrate on the business at hand, such as making 777s. Meanwhile, the company's software vendor — The Baan Co. in Boeing's case — keeps the user outfitted with the latest technology.

ERP systems also allow users to turn on and off functionality as needed to adapt quickly to changes in their business, where a customized application has to be rebuilt.

"What these applications do is capture data about historical activity, current operations and future plans, and organize that in a way people can use," Shepherd said.

GATX Capital Corp. went live Jan. 1 with German vendor SAP's R/3. A lessor of commercial aircraft and other large equipment, GATX had to customize R/3 to fit its business. Now the San Francisco company is preparing to sell its work to its competition [CW, Jan. 5].

But GATX officials said they aren't worried about selling the secrets of their success. "We make money managing assets and doing good leasing transactions. There is not much coming out of any software system that does that for us," said Michael Cromar, chief financial officer at GATX.

Bob Towner, SAP project manager for financial systems at Deere & Co., in Moline, Ill., said that simply having the systems is a competitive advantage because it gives a company a foundation to run its business and then concentrate on grabbing market share.

Towner said R/3 allows a global company such as Deere to standardize the business processes in its far-flung operations. The firm then can move nimbly and adapt quickly to market demands.

"When you look at the flexibility in big ERP systems, once implemented, they can look entirely different from one organization to another," Towner said. SAP is "a set of building blocks, and it's how you put those building blocks together that gives you an advantage." □

& **Companies find that backbone ERP systems affect all other technical, software decisions. Page 24**

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WITHOUT FDR INSTANTBACKUP	WITH FDR INSTANTBACKUP
▪ Split BCV from Primary Volume A	▪ Split BCV from Primary Volume A
▪ Relabel Off-line BCV as Volume B	▪ NOT REQUIRED
▪ Vary Relabeled Volume B On-line	▪ NOT REQUIRED
▪ Backup Volume B	▪ Backup Volume A (the BCV Volume)
▪ During Restore, User Must Be Aware That Backup of Volume B is Really Volume A	▪ No Special Restore Considerations

Relabeling volumes is an administrative nightmare. It may be difficult to identify the backup of relabeled BCV Volume B as a backup of Volume A. While Volume B is online, having a VVDS with a name that does not match the volume serial may cause problems with SMS and VSAM, and reporting and capacity analysis tools will report that data sets on the BCV volumes are uncataloged.

NON-DISRUPTIVE FULL-VOLUME BACKUP

Example of how to perform a non-disruptive full-volume backup:

```
//FDR      EXEC PGM=FDR,REGION=0M
//DISK1    DD  DSN=FDR.USE.UNIT01F8,
//             UNIT=3390,VOL=SER=MVS001,DISP=OLD
  DUMP TYPE=FDR
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Crypto bill could see spring passage

By Laura DiDio
SAN FRANCISCO

THE SPONSORS OF A BILL that would ease restrictions on the export of encryption software told users and analysts at last week's RSA Security show that enactment should occur this spring.

Reps. Bob Goodlatte (R-Va.) and John Ashcroft (R-Mo.) participated in the show's keynote speech via satellite and said the Security and Freedom Through Encryption (SAFE) bill stands a good chance of passage.

The software industry is pinning its hopes on the SAFE bill, which would lift the current 40-bit limit on encrypted data. The issue has taken on more importance with the rise of the Internet and electronic commerce.

"If the 40-bit encryption controls are allowed to stand, American businesses will be put at a terrible disadvantage," said Chris Byrnes, a vice president at Meta Group, Inc., in Reston, Va.

Leading the charge against the SAFE bill is Federal Bureau of Investigation Director Louis Freeh, who advocates strong controls on encryption exports to protect the U.S. from cyberterrorist attacks.

Government regulations currently prohibit U.S. companies from using the latest 128-bit key encryption to secure their data. Organizations must instead settle for 40-bit key encryption, which was state-of-the-art five years ago but is easily cracked by today's hackers, users said.

"The government's stance against 128-bit encryption is way behind the times. Businesses need adequate protection for their data as well as their customers' data, and 40-bit encryption keys don't do the job anymore," said Abby MacLean, technology manager at Federal Information Exchange, Inc., a government subcontractor in Gaithersburg, Md.

TOO RISKY

"There are serious implications if our customers' transactions were to become public because our encryption key was cracked. It's a risk that we don't want to take," said Ed Ehrgott, director of internal auditing at Charles Schwab & Co., in San Francisco.

A security manager at a large Midwestern insurance agency, who requested anonymity, agreed. He noted that during a demonstration at last year's RSA show, it took a hacker only about three and a half hours to crack a 40-bit encryption key.

"What are we supposed to tell our customers: 'Your information is sort of or maybe safe with us'?" the manager said.

Jerry Berman, director of the Center for Democracy and Technology, in Washington, agreed. He said that if corporations can't guarantee privacy, they will have problems with their customers. "The damage to customer confidence and the bottom line to U.S. businesses could be immeasurable. At this point, we can't even quantify it," Berman said.

To sidestep the current U.S. export controls on encryption, several companies, such as Security Dynamics Technologies, Inc., in Bedford, Mass., and its subsidiary, RSA Data Security, Inc., in Redwood City, Calif., have established Japanese subsidiaries. Japanese companies aren't bound by the U.S. encryption export controls.

But not everyone believes the situation is so dire. "The encryption debate is a really tough, gray issue. Before jumping to any conclusions or snap judgments, we must know specifically what encryption controls will go through," said Dorothy Denning, a professor at Georgetown University's Department of Computer Science in Washington. "Any control will have an impact, but you have to know what the controls are first." ☐

& User demand for secure products drives vendor deals. Page 49

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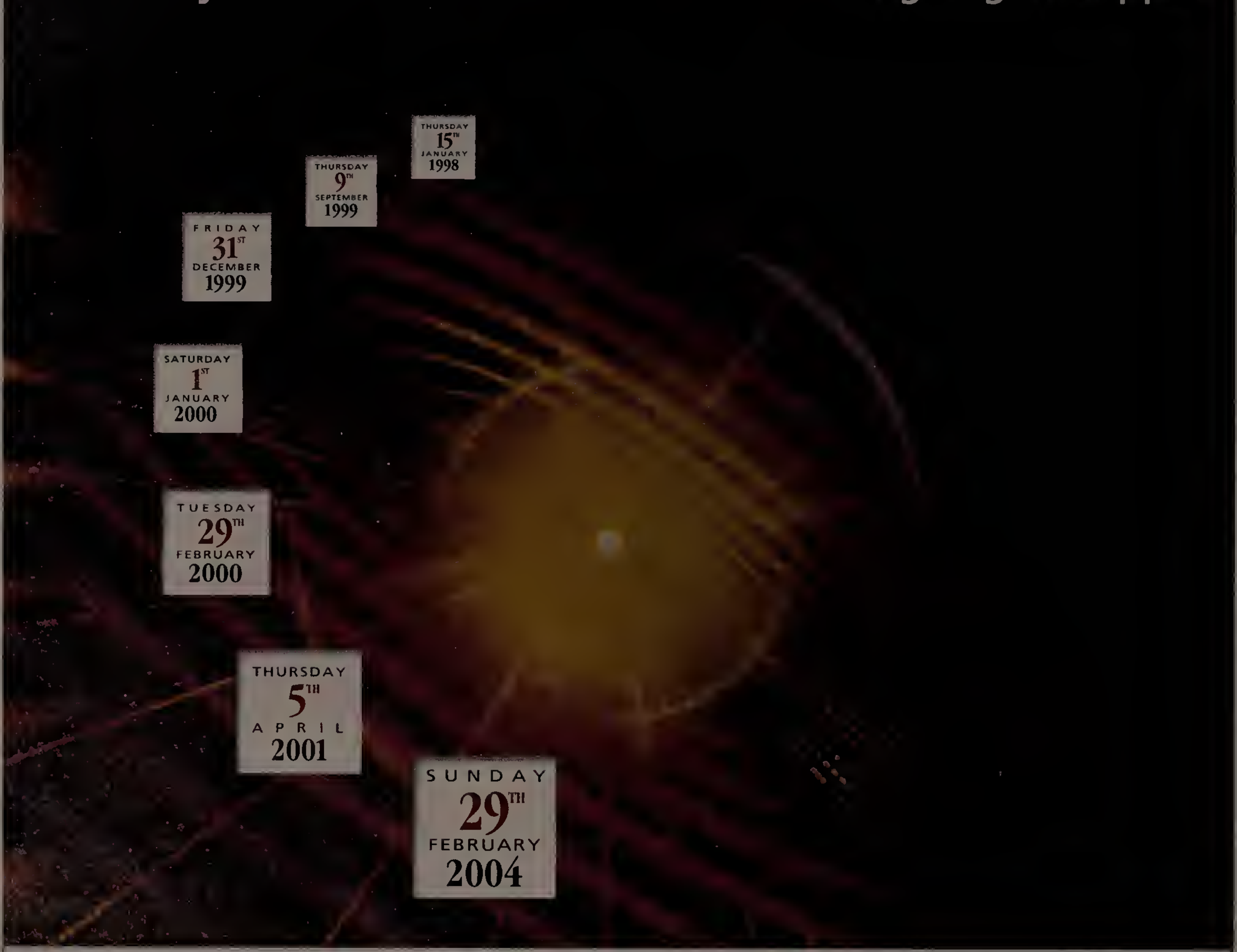
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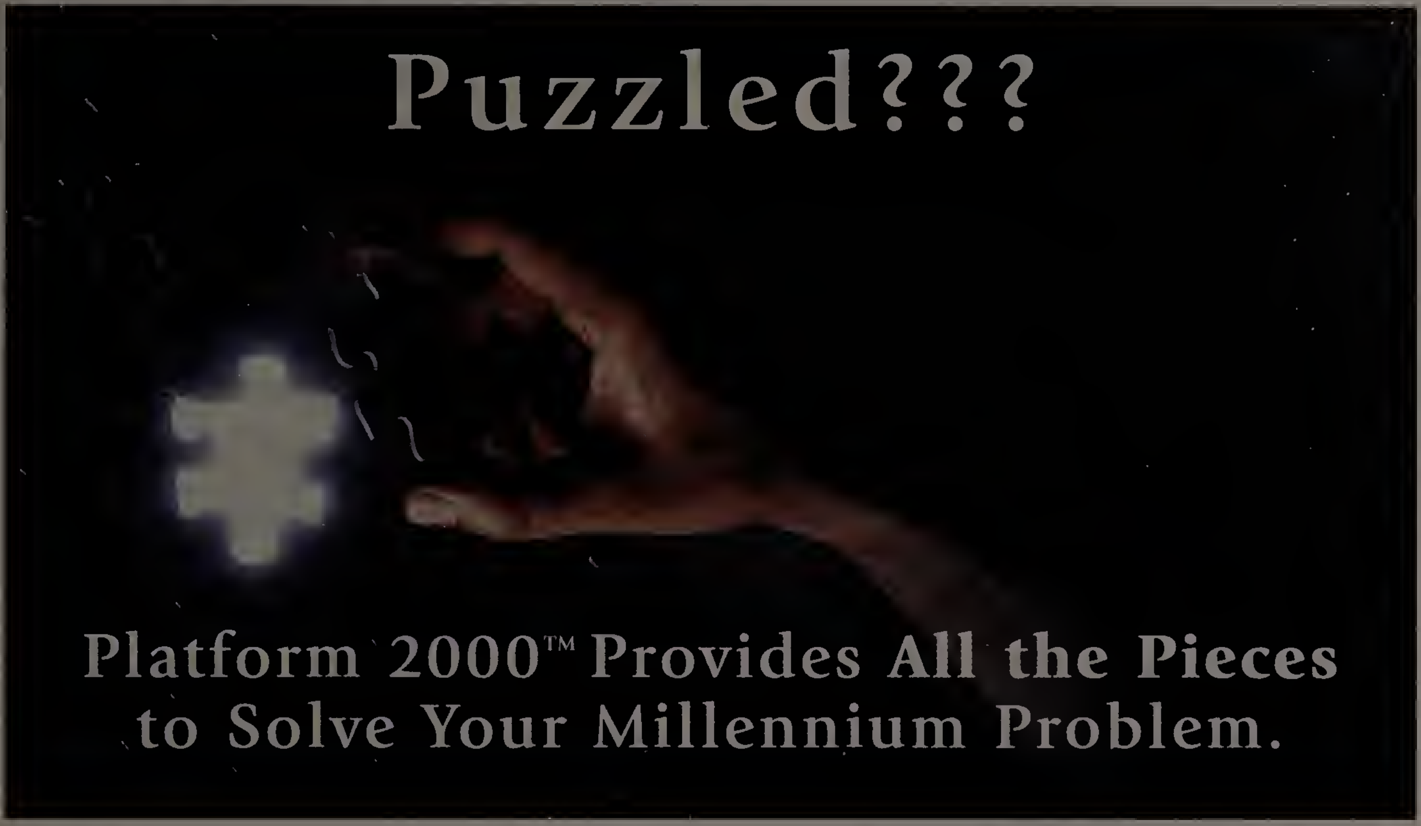
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Broadcasters stake out turf for shortwave radio on Web

By Sharon Machlis

IT USED TO be that if you wanted to listen to shortwave radio from faraway lands, you got a special receiver, put up an antenna and checked broadcast schedules to tune in.

Now, there's the World Wide Web.

The top international broadcasters, such as the BBC, Voice of America and Radio France International, are all staking out the low-cost turf of cyberspace.

"We were launched with the view the Internet was a third broadcasting medium for us" after radio and television, said Chris Nuttall, world editor for BBC News Online. British Broadcasting Corp. this year is investing 3 million pounds sterling, close to $5 million U.S., on the 2-month-old site.

Voice of America (VOA), one of the most prolific Internet news broadcasters, posts audio in 23 languages on its Web site. An upgrade to VOA's master control center planned for midyear should allow all 53 broadcast languages to go up on the Web, said Richard Firestone, Web manager at the U.S. government's International Broadcast Bureau, which includes VOA.

ERIC YANG

For now, the total Web listening audience is tiny compared with the millions who tune in to shortwave, and most major broadcasters doubt that the balance will change anytime soon. At VOA, for example, there are an estimated 250,000 hits per week on the Web site vs. 85 million weekly radio listeners.

HUGE AUDIENCE

Radio Canada International (RCI) broadcasts could reach 500 million listeners in China alone, said Bob O'Reilly, executive director at RCI. "It's going to be a long time before RealAudio can rival that," he said.

Nevertheless, broadcasters said it is important to establish a presence. "I think it's necessary for any communications agency to be available on the Web," Firestone said. "Having that second outlet becomes another way of establishing and increasing our credibility."

And the Web is a fairly inexpensive way to seek new listeners, O'Reilly said. A shortwave transmitter could cost $10 million.

MUSIC, TOO

Radio France International (RFI), which offers audio newscasts in five languages on the Internet, this month planned to demonstrate a Web-based "music jukebox" at the Midem conference in Cannes, France.

The system will let site visitors select from various French-language songs and download portions to save.

The debut was delayed while copyright issues were hammered out.

Web listeners are often similar to those who would tune in to shortwave, ranging from people interested in foreign politics to those studying a new language. Immigrants, refugees and expatriates often tap in to the Web-based broadcasts to get news from home.

The RFI site was first proposed by some French expatriates in the Washington area who now run the Web site from their McLean, Va., office. But it makes sense to host the servers in the U.S., where Internet connections are better and less costly, said Jacques-Gabriel Mariotti, president of Medianet, Inc.

People in the industry said Web-based audio has the potential to radically change the relationship a listener has with broadcasters.

"Now you're no longer depending on their schedule," said Joe Lawlor, webmaster at Canadian Broadcasting Corp. "I think an on-demand world will be the future. . . . Forget the 500 channels. It's 'what I want, when I want it.' "

"We need to learn these digital skills, which I think will translate to digital television," said BBC Online editor Mike Smart. ☐

RELATEDLINKS

For these and other related links, point your browser at ***www2.computerworld.com/home/online9697.nsf/All/980112radiolinks***

- **The WWW Shortwave Listening Guide** *www.anarc.org/naswa/swlguide/*
- **British Broadcasting Corp.** *www.bbc.co.uk*
- **Shortwave frequently asked questions** *www.acs.ncsu.edu/HamRadio/FAQ/FAQ_Shortwave.html*

Corel faces uncertain future

▸ *Financial problems may overshadow products*

By Gordon Mah Ung

A BRUTAL WINTER storm ravaging eastern Canada delayed the official release of Corel Corp.'s fourth-quarter results last week. But it may have been just as well.

The news coming out of Ottawa wasn't expected to get any better than the gloomy weather. The maker of WordPerfect and CorelDraw preannounced losses of about $95 million on sales of $44 million for its quarter ended Nov. 30. It was the second consecutive losing quarter for the once-stellar Corel.

"It's really a difficult situation for them right now," said Michael DeLavergne, a financial analyst at Dlouhy Investments in Montreal. "And I think it's probably going to be difficult for a while because their financial problems are overshadowing their products. People may be choosing to go with the 'safe and stable' Microsoft products."

Corel insisted it isn't in danger of going over the edge. Officials pointed to $20 million in cash reserves and low long-term debt. The company just released an update to its popular CorelDraw program and finally expects to introduce Java products and its Video Network Computer this year.

FOCUS CHANGE

The company has been shifting its focus from retail sales to large corporate accounts. Last year, Corel jettisoned a line of unsuccessful consumer products and said it would reduce retail advertising.

"I don't think they're in any immediate danger in terms of solvency. In terms of the longer-term picture, it's very much an unknown," DeLavergne said.

But Rob Enderle, an analyst at Giga Information Group, in Cambridge, Mass., predicted more dire days for Corel.

After buying the WordPerfect line from Novell, Inc. for a song in 1996, Corel set itself up to fight Microsoft Corp. in a market Microsoft pretty much owned already, Enderle said. With its forthcoming Java products, Corel will be fighting IBM and Lotus Development Corp.

"Given where they are now, they need to look for easy fights to win and stop picking fights with the big guys," Enderle said. "What I think they should do is find ways to fix things around the existing Microsoft products instead of spending a lot of money to fight them."

Corel's financial problems had some users worried but not ready to ditch Corel products.

"Anytime a company's finances are in the dumps you wonder about their viability," said Eric Goldreich, director of information systems at law firm Sheppard, Mullin, Richter & Hampton in Los Angeles. "On the other hand, they've got a better product. It's pretty much our contention that WordPerfect is a better word processor than Microsoft Word for the legal environment."

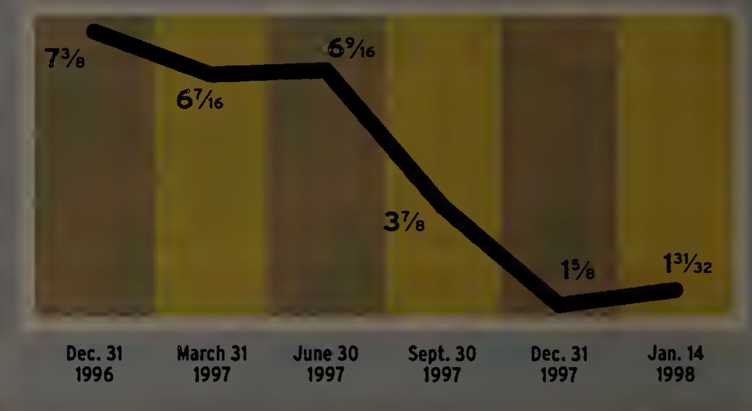
Goldreich said the problems go back to Novell's ownership of WordPerfect, but he put some of the blame on Corel's forays into videoconferencing and the Video Network Computer.

Greg Dines, an associate systems analyst at the Contractors State License Board, in Sacramento, Calif., said his group has been happy with Corel on its 500 desktops.

"The product itself is awesome," Dines said. "We don't look at the stock market, we don't look at the rag magazines. We look at the product and the service we get." ☐

COREL SLIDE

Corel's stock price has fallen on bad times



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IBM wants FAA to retire 3083s

▶ *Pressures FAA to pull the plug on old systems*

By Patrick Thibodeau

YEAR 2000

FEW COMPANIES face the problem the U.S. Federal Aviation Administration now confronts: keeping 30 ancient IBM 3083 computers from suffering year 2000 failures. And if IBM has its way, the FAA won't have to deal with the problem, either.

Fewer than 100 of those old machines are still in use, according to IBM, in Armonk, N.Y. And businesses would be foolish to continue running applications — especially mission-critical ones — on them, analysts agreed.

But the FAA may be the exception. The 3083s, which were manufactured in the early 1980s, are used at a majority of the FAA's Air Route Traffic Control Centers. The 20 control centers keep track of all aircraft in U.S. airspace. The 3083s take radar information and translate it into visual display data, reporting an aircraft's location, identity, altitude, speed and destination for flight controllers.

The agency's continued use of what many observers would call obsolete machines has it at odds with IBM. Some published reports last week claim IBM is pressuring the FAA to upgrade to newer, year 2000-compatible systems. The FAA will only say, "we have a slight disagreement about how to fix the problem."

The FAA is about a month away from completing its year 2000 assessment on the 3083s and the approximately 500,000 lines of code that run on them, said Paul Takemoto, an FAA spokesman in Washington.

"We believe we have both the tools and the people to certify [the 3083] as [year 2000]-compliant," he said. Even so, the FAA may scrap the 3083s if the assessment shows they must be replaced.

IBM isn't planning to make the 3083 year 2000-compliant and said the machines should be replaced

The agency wants to complete repairs to the two-digit date glitch on all its computers by year's end and conduct testing through next year, Takemoto said. The 3083s, which are used in 15 of the 20 air traffic centers, were originally scheduled to be upgraded in 2003. The agency's five busiest centers — in Fort Worth, Texas; Cleveland; Chicago; New York; and Washington — use IBM ES/9121 mainframes.

OUT WITH THE OLD

But IBM isn't planning to make the 3083 year 2000-compliant. It said the machines should be replaced. "This is old equipment, and it is well past its natural life cycle," said IBM spokesman Craig Lowder. He said IBM has neither the replacement parts nor people with the skills necessary to make the repairs.

Buying the hardware for a new system wouldn't necessarily be expensive. An IBM RS/6000 workstation may have enough power to run the application. The bigger costs would be upgrading to a new operating system. Analysts estimate those costs could run anywhere from $6 million to $30 million for the system.

RELATIVELY EASY?

Tom Oleson, an analyst at International Data Corp., in Framingham, Mass., said the half-million lines of code that must be updated by the FAA "is a very small number that can be fixed quite rapidly given the tools that are available today." The average length of time for a company to fix date problems buried in several million or more lines of code is about two years and four months, he said.

But Oleson, who has worked with 3083s in a previous job with an insurance company, said it may be impossible to save the hardware. The 3083 processor, which has all the power of a small file server today, won't accept the date change, he said.

John Young, vice president of enterprise systems planning at The Clipper Group, Inc., in Wellesley, Mass., was skeptical about the FAA's ability to make the machines compliant in that time frame. "Solving the problem is only the first step. The hard part is doing all of the testing to ensure that you got everything out of there — and that's a time-consuming effort." □

ESPN SPORTSZONE
PACKERS
NFL
7

ERIC YANG

Super Bowl on the Web

CONTINUED FROM PAGE 1

"People want statistics. People want information," said Patrick Keane, an analyst at Jupiter Communications, Inc., in New York. "I think events in general can be very successful on the Web."

"There's an increasing trend toward events on TV using the Internet." said Jill Frankle, an analyst at International Data Corp., in New York.

PRE GAME

Before the game, fans can see live World Wide Webcasts of coach and player press conferences, chat with analysts, view animated versions of teams' favorite plays and find out more statistics than most people would ever need to know.

During the game, sites such as Superbowl.com and ESPN SportsZone will offer complementary analysis, up-to-the-minute statistics and fan chats. For those who want a change of linguistic pace, Superbowl.com plans audio play-by-play feeds in Russian, Italian, German and Japanese.

POST GAME

After the game, CNN/SI plans to post video clips from what has become an event within an event — commercials debuting during the game.

At $2.6 million per minute, companies tend to put a lot of effort into producing their Super Bowl spots.

The National Football League's official Super Bowl site, *www.superbowl.com*, this week plans audio and video of press conferences.

And if you are itching to find out what is going on at the stadium itself, Superbowl.com expects to offer "Webcam" shots of the stadium so people can peek in and see how it is being gussied up for the Big Game.

More than 30 staffers from the site's three partners — the NFL, NBC Sports and IBM — will work on the site.

"We have a bigger production center at the game than some of the radio broadcasters do," said Ann Kirschner, vice president of NFL Interactive.

There is a store to purchase official Super Bowl merchandise, of course, as well as game analysis and some comedy programming from Jay Leno.

COMPLEMENTARY

Superbowl.com doesn't plan to compete with the televised Super Bowl, which garners millions of dollars in broadcasting fees. Instead, Kirschner sees the site as complementary, offering a deeper level of information and analysis for a "two-screen" Super Bowl.

And although the Internet can't rival the millions of viewers expected on NBC, Kirschner said the Web is a profit center for the NFL, thanks in part to revenue (amount undisclosed) from IBM as the site's exclusive partner.

The league's regular site at *www.nfl.com* also plans extended Super Bowl coverage.

ESPN (*http://espn.sportszone.com*) will feature an array of statistics, scouting reports and history, along with analysis from former quarterbacks Joe Theismann and Ron Jaworski, trivia tests and online chats.

On game day, there will be a mix of play-by-play and constantly updated graphics and statistics. Post game highlights will feature user polls on best and worst game commercials, among other questions.

VIDEO, ANIMATION

CNN/SI, a joint venture of Cable News Network and Sports Illustrated (*www.cnnsi.com*) is posting Shockwave animated plays for both teams, streaming video of game-week press conferences and, of course, the ubiquitous Super Bowl merchandise store.

Nobody seems willing to predict how much traffic they will handle on Super Bowl weekend, although IBM has planned for up to 40 million hits per day at Superbowl.com. Kirschner said, "I would no more hazard a guess on that than who's going to win the Super Bowl." □

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TP8A

Labor confab issues call for training to combat shortages

CONTINUED FROM PAGE 1

company in Buffalo, N.Y.

"This is all about competitiveness," Fitzgerald said. "We're not early in this game. We're late to the party."

Fitzgerald spoke at last week's National Information Technology Workforce Convocation here. The conference, which was attended by about 300 people from industry, government and academia, focused on raising awareness of the labor situation and developing ways to address the issue.

SCARY FIGURES

More than 346,000 IT jobs remain unfilled because of a lack of skilled workers, according to a 1998 study by the Information Technology Association of America (ITAA) [CW, Jan. 12]. The ITAA study (*www.itaa.org*) also revealed that 88% of 532 companies surveyed retrain existing staff, 40% hire immigrants to the U.S., and 16% outsource to non-U.S. contractors.

In the next decade, the U.S. Labor Department estimates that another 1.3 million workers will be needed to fill new high-tech jobs. Perhaps with that in mind, government and industry last week waved dollars to back up their all-out training push.

The Labor Department said it will distribute $3 million in grants to retrain laid-off workers as programmers and another $8 million to build an online recruiting site where employers and candidates can post job openings and resumes.

With gross revenue of $866 billion annually, IT is the largest U.S. industry. Government figures show that the software industry in particular is growing at twice the rate of the overall economy.

The Commerce Department will kick in another $17 million to bring technology and training to the poor.

Another $6 million in grants will go to industry groups that foster internship programs and vocational training at companies for young people.

Companies, meanwhile, are boosting in-house programs to continually retrain IT workers already on board, as well as newly hired college graduates with music, history and other non-IT degrees.

For example, in an unusual move, CTG, which spends 2% of its annual revenue on IT skills training, has hired a group of dedicated career development managers.

Their sole job is to track and manage the skills portfolios and career plans of IT workers. Each manager tracks seven to 20 workers. Managers' compensation is based on how well they retain IT staffers.

Beaverton, Ore.-based Claremont Technology Group, Inc., a $90 million systems integration company, recently doubled its IT training budget from 2.5% to 5% of revenue, or about $4.5 million annually.

"But the issue for us is not the dollars. It's the time to do the training," CEO Paul Cosgrave said. "If people really want to stay current, they may have to do these training courses on their own time."

Underscoring the big emphasis on training were briefings from organizers of several successful IT training efforts already under way, including the Massachusetts Software Council's 5-year-old Fellowship Program. So far, more than 300 professionals dislocated from the defense, aerospace and other industries have been graduated from the 5½-month program, which concentrates on the behavioral and cultural changes workers must make to fit into the software industry.

"Most of the fellows come from very large companies and are used to working in very hierarchical structures and taking orders," said Council President Joyce Plotkin. "We refocus them to be much more hands-on, to take risks and to learn by doing. They learn that you make mistakes, but also how to recover from them quickly."

Almost 90% of the program's graduates now work in the software industry, starting at an average salary of $50,000, she

& **Companies use work space, office location to lure IT talent. Page 41**

FILLING THE GAP

A sampling of programs aimed at filling the IT skills gap:

Applied Information Management Institute (AIM)

Contact: Robert E. Sweeney, executive director (402) 422-2343

Omaha businesses and local colleges jointly created courses to prepare students for open IT positions at Omaha companies

CTCNet

Contact: ctcnet@edc.org

Provides technology access to 250 community organizations whose hundreds of thousands of members otherwise wouldn't have access

Detroit School of Industrial Arts

Contact: Gail Lutey, Complete Business Solutions, Inc., at glutey@cbsinc.com

Offers technology training to high school students enrolled in charter schools

Are hiring managers just being too picky?

WHAT IT labor shortage?

There really is none, according to Norman Matloff, a professor of computer science at the University of California at Davis.

Instead, it is all a myth being perpetuated by superpicky employers who refuse to hire the vast number of workers with experience in older technologies.

"Employers are shooting themselves in the foot because they're only willing to hire certain groups of people," Matloff told a stunned audience at last week's National Information Technology Workforce Convocation in Berkeley, Calif.

"Employers are obsessed with hot skills," Matloff said. Meanwhile, plenty of other talented programmers who could easily learn new skills remain unemployed.

Matloff's research (*http://heather.cs.ucdavis.edu/svreport.html*) indicates that high-tech companies, including Microsoft Corp., hire only between 2% and 5% of candidates who apply for IT jobs.

OLDER WORKERS

Additionally, age discrimination against midcareer programmers over 35 is rampant, Matloff charged.

Companies want recent college graduates and foreign nationals because they can pay them less, he said.

Not at Electronic Data Systems Corp. in Plano, Texas.

Following Matloff's presentation, Marsha Clark, an employee development executive at EDS, told him, "I'd like to come live in your world where you think there's no shortage.

"On any given day, we have between 5,000 and 10,000 vacancies. We're hiring more of every kind of people we can," Clark said.

Overall, Matloff's assertions stood in stark contrast to the Information Technology Association of America's findings, the Labor Department's projections and the experiences of many attendees from the industry.

"I've never seen a period of time like this," said Bob Forman, an executive at IMI Systems, Inc. and 20-plus year veteran of the IT industry. "Midcareer people are extremely valuable. People with CICS, Cobol and DB2 are all very valuable with the year 2000 problem."

The bottom line, he said, is that "anybody today that can program and communicate is going to have a job."

—Julia King

Venerable IS journal shuts down

By Sharon Machlis

Datamation
Time
uary 200

DATAMATION MAGAZINE is shutting down after 40 years of publication, a victim of red ink and stiff competition, Cahners Publishing Co. spokesman Margaret Pantridge confirmed last week.

The February issue will be the last. But the PlugIn Datamation World Wide Web site will continue, with some of the magazine's approximately 20 employees possibly landing jobs on the Internet version.

Datamation, the first computer industry trade publication, was launched by Technical Publishing in New York and sold to Cahners in 1986 when the Newton, Mass.-based firm acquired Technical from Dun & Bradstreet Corp.

The magazine targeted information systems professionals and claimed a circulation of 199,000.

As losses mounted, the magazine went from a twice-monthly to a monthly publication in 1996.

The *Datamation* shutdown is part of a decision by Cahners to pull out of the computer publishing business and concentrate on its other markets, such as manufacturing and entertainment.

Late last year, Cahners sold several other computer publications, including *Government Computer News*, to The Washington Post Co. □

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Microsoft's Office 98 Mac gets mixed reviews

▸ *Critics call it bloated, optimists praise the possibilities*

By Gordon Mah Ung
San Francisco

DIE-HARD MACINTOSH loyalists remained skeptical, but many Macintosh users saw Microsoft Corp.'s first Macintosh product launch since its investment in Apple Computer, Inc. as much-needed good news.

Microsoft threw a coming-out party for the Office 98 Macintosh Edition software suite at the recent Macworld Expo here. Critics called the product bloatware, but optimists considered it proof of Microsoft's commitment to Apple after its $150 million investment in August.

Redmond, Wash.-based Microsoft, long viewed as the foil for all things Macintosh, plans to have the suite on store shelves by March and has begun prebooking sales through its World Wide Web site (*www.microsoft.com*).

For some, old habits die hard.

"It's still not that great," said an underwhelmed Irwin Yamasaki after watching a demonstration of the business productivity suite. "I'd rather have a speedier product that's not bloated."

Yamasaki said the minimum memory requirements to run just one Office application — 16M bytes, according to Microsoft — are too much for the machines in his office at the University of California in San Francisco.

Office 98's compatibility features have great potential – once people get used to the idea.

– Gene Stull
Lockheed Martin

Others were guardedly optimistic.

Alan Schaevitz, a network consultant at AYS Associates, in San Francisco, said if Office 98 lives up to its demonstration, he will be able to complete his work without a Windows PC. "Right now, I find myself doing some [of my work] on the Mac and then going to Kinko's to do the rest [on Windows machines]."

Office 98 includes new versions of Word, Excel and PowerPoint and the new Internet Explorer 4.0. It also has Outlook Express, an Internet mail client, personal information manager and news reader.

Microsoft officials said Office 98 will run on any PowerPC Macintosh with System 7.5 and up, but they recommended at least a 120-MHz processor and 32M bytes of RAM. The average footprint on the hard disk is about 90M bytes.

Microsoft officials said their research indicates that the average Macintosh is in better shape to run the suite than Windows 95 machines were when Office 97 was issued a year ago.

Gene Stull, an engineering manager at Lockheed Martin Corp., in Greenbelt, Md., agreed. He said most of the defense contractor's Macintoshes should be able to run the suite right out of the box.

Stull said Office 98 has great potential once people get used to the idea. A Macintosh Excel spreadsheet user's ability to edit a document concurrently with other users, including Windows machines, is a key feature, he said.

But he added that even with all the new features in Office 98, such as customized network installations and self-repairing applications, Lockheed Martin is "interested, but not excited."

Stull said the number of Macintosh desktops at the company has dwindled to about 25% of the end-user population, with the rest using Windows-based machines.

The regular price of Office 98 is $499; the cost to upgrade from a previous version is $299. ☐

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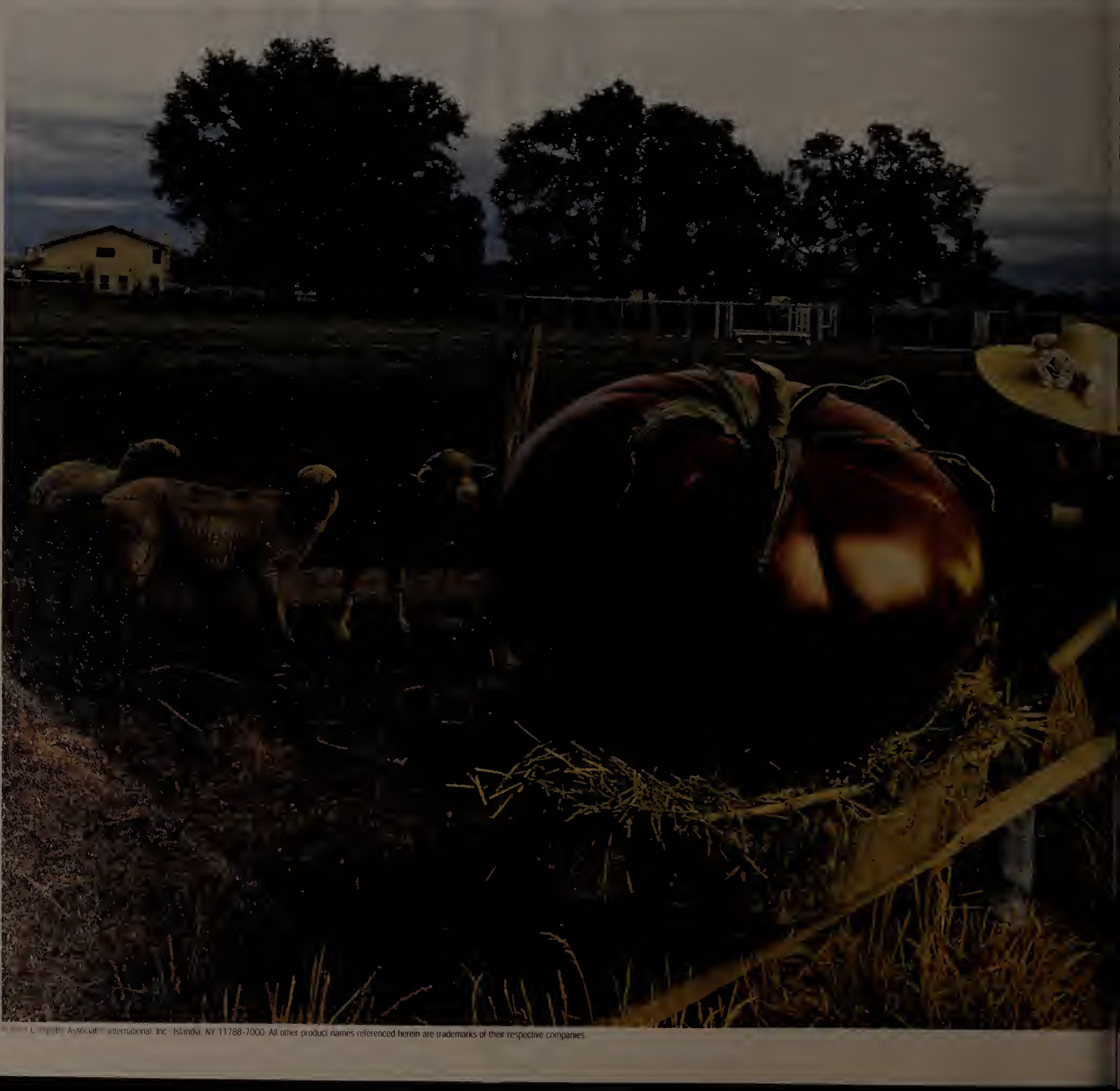

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Users applaud Bell ruling but don't expect immediate benefits

By Matt Hamblen

NETWORK MANAGERS are praising a federal judge's recent decision that lets the Baby Bells compete for long-distance voice and data services. But many are skeptical that the anticipated low prices and new benefits will hit any time soon.

"Whenever there's more competition, the end customer gets better deals," said Gaston Best, a network engineer at Travelers Property Casualty in Hartford, Conn.

But users also wondered when the impact of the ruling will be felt because of lengthy appeals expected from the Federal Communications Commission and long-distance companies.

Also, several managers questioned whether the Bell companies will have the expertise to provide the highly reliable long-distance service businesses demand.

"I have absolutely no faith that local carriers can provide good long-distance service based on my experience with local carriers," Best said.

U.S. District Court Judge Joe Kendall ruled Dec. 31 that portions of the Telecommunications Act of 1996 are unconstitutional. Those portions include restricting the Bell companies from entering the $100 billion annual long-distance market.

TIME WILL TELL

"The ruling sounds good for competition, but it's too soon to figure out if it's a benefit to corporations," said Joe Gallo, vice president of corporate telecommunications at Automatic Data Processing, Inc., in Roseland, N.J.

Gallo's company spends millions of dollars each month on voice and data carriers and can leverage attractive long-distance rates. Analysts said large users can negotiate rates to about 5 cents per minute.

> **"The ruling sounds good for competition, but it's too soon to figure out if it's a benefit to corporations."**
>
> **– Joe Gallo**
> **Automatic Data Processing**

"Our hope would be that rates would get down to 3 cents a minute" with more competition, Gallo said.

But some analysts worried that the ruling would embolden Bell companies to delay long-distance companies from entering their local markets as required in the 1996 law. "We don't have significant local competition, and customers want that," said Rob Rich, an analyst at The Yankee Group, in Boston.

HEAD START

If the Bells enter the long-distance market without opening their local markets first, they will have an unfair advantage that could lead to dominance in long-distance service and eventually higher rates, according to Richard M. Healey, a director of the Communications Managers Association (CMA) and president of Rockefeller Group Telecommunications Services, Inc., in New York.

Aside from lower prices, Gallo and other managers said they want the ease of integrated billing.

But integrated billing is a double-edged sword, analysts warned. Users should still plan to hire more than one carrier to prevent disasters from cable cuts, said Ellen Van Cleve, a director of the CMA, in Morristown, N.J. □

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"The importance that the Intel/BMC relationship brings to the market is that BMC innovation in I/O technology naturally makes them a leader in this collective new I/O-centric industry," states Alan Steinberg, Director of New Business Development, Connected P.C. Division at Intel. "Currently we have companies coming in from the desktop and from other areas of the industry that don't necessarily have the Enterprise experience BMC Software has to deal with the type of I/O that is needed in what could be called the new 'open mainframe' world."

Steinberg envisions a world where Microsoft will provide the main operating system, Intel will provide the hardware architecture and BMC Software will contribute the key $I_2$0-compliant management technology. BMC Software's role will be to help architect what Steinberg calls the "highly available, highly manageable open system mainframe" on the I/O space.

Bob Beauchamp, Vice President of Strategic Marketing and Corporate Development for BMC Software, agrees. "The pervasiveness of the i960 chip in the Windows NT and NetWare environments, combined with BMC Software's PATROL technology, will empower customers with unprecedented management and monitoring capabilities from the application to the motherboard."

Clearly, the ability to gather statistics regarding I/O is a great step forward. The PATROL Application Management Suite completes the picture by correlating I/O statistics with the applications that are utilizing the I_2O components or sub-system. This allows unprecedented optimization capabilities, such as automated load balancing, cache reallocation, and the rerouting of network traffic. All of these capabilities can be performed on demand and are based on the performance requirements of the applications. Currently, no two vendors come as close as Intel and BMC Software in providing this comprehensive approach to I/O processing and manageability.

"We've moved into a new paradigm where I/O is as important as the central CPU technology," states Steinberg. "This shift will allow BMC to proliferate its management product line in the open systems environment. Pairing Intel I/O technology with PATROL is just the very beginning. It's the first product of many, as this new I/O-centered technology emerges into the marketplace, and we think it's going to be an exciting ride."

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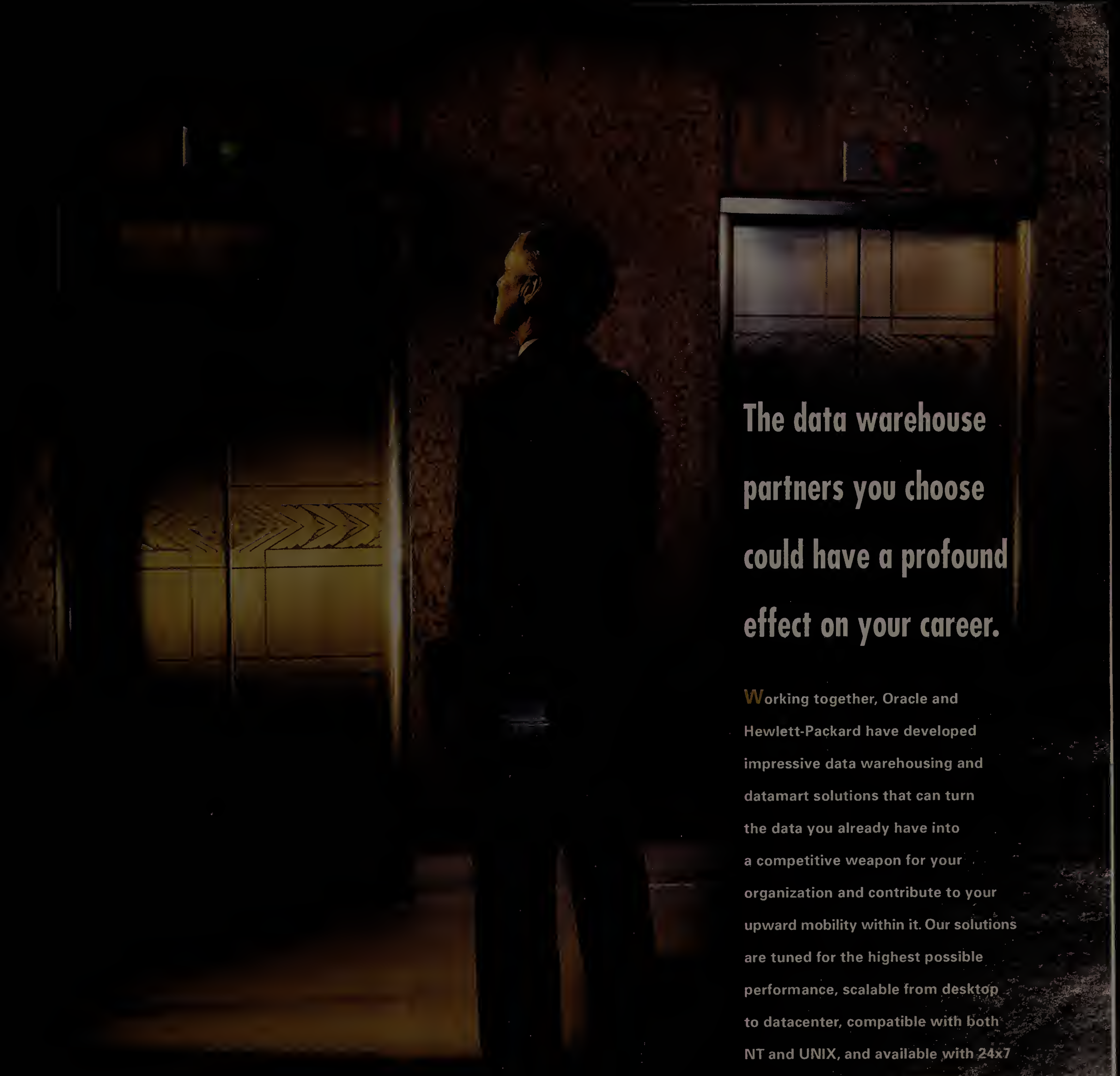

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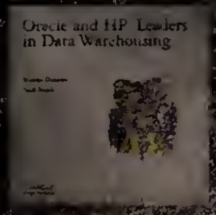

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▸ *IS struggles to manage complex networks*

By Patrick Dryden

IS MANAGERS ARE having trouble managing complex client/server networks because expertise is scarce and central management processes are still evolving.

Although many information systems groups loathe the idea of surrendering control, they can get help by selectively outsourcing some chores, analysts said.

Survey data from integrator International Network Services, Inc., in Sunnyvale, Calif., describes the dilemma: More than 100 respondents cited difficulty in fielding experienced staff to handle the complexity and breadth of services in their network operation centers, including the integration of network and systems management.

Some companies are out-tasking: maintaining control over vital network resources while turning over specific functions to third parties.

However, the respondents also said they are hesitant to look elsewhere for help.

"We have to maintain control ourselves," said Robin Farassat, network services manager at the research and development division of Roche Bioscience, in Palo Alto, Calif.

External service providers can't keep the growing network up to date and flowing smoothly as client/server applications gobble bandwidth and demand quick response, according to Farassat.

Yet keeping up internally is a constant struggle, he acknowledged.

For example, major internetworking vendors that are based nearby drain available talent. "We really have trouble finding and keeping network experts on staff," Farassat said.

The state of Michigan can't match salaries offered in the private sector, said Bryan Ruhf, manager of the state's consolidated network operation center, in Lansing. To cope with turnover, he tries to retain staff expertise in expert system software to ensure smooth operations while newcomers come up to speed

IS groups often lack the time or the ability to apply available management tools and to interpret the statistics they reveal, according to Ellen Carney, an analyst at Dataquest, in San Jose, Calif.

Implementing management tools is like buying a bathing suit in February to wear in June, Carney said. He added, "They think they can handle the situation in-house, but a lot must fall into place before they get any benefit."

Few IS groups will risk surrendering "the family jewels" entirely to outside service providers, Carney said.

But it is possible, given adequate safeguards.

For example, American Airlines doesn't worry that its IS arm, Sabre Computer Services, turned over global network management to Paris-based SITA Group, said Scott Nason, chief information officer at American Airlines, in Fort Worth, Texas.

"It's not a situation where the vendor's only reason to do a good job is to keep us happy. Sabre also depends on 100% reliability from the same network, so we're comfortable with outsourcing," Nason said.

OUT-TASKING

Because control over vital network resources is paramount, the trend is toward turning over specific functions, often called out-tasking.

"Sophisticated organizations seek help from strategic partners in a few areas yet retain central control for accountability," said Kitty Weldon, an outsourcing analyst at The Yankee Group, in Boston.

Selective outsourcing overcomes the threat of staff replacement while securing scarce expertise, said Ray Paquet, a management analyst at Gartner Group, Inc., in Stamford, Conn.

"IS managers must recognize there's no loyalty anymore. These experts are all free agents, hired guns available to the highest bidder," Paquet said. ☐

HITTING THE WALL

Greatest barriers to outsourcing network operations

Network operations too critical to outsource	35%
Service too expensive	19%
Lack of service provider capabilities	32%
Justifying cost/benefit to upper management	26%
Insufficient service-level commitments	25%
Lack of global operational coverage	18%

Base: 114 IS managers; multiple responses allowed

Source: International Network Services, Inc., Sunnyvale, Calif.

• Buyers must factor in compatibility

ERP systems cast shadow across business units

By Randy Weston

WHEN MONSANTO CORP. decided to implement a bar-code system, it chose a more user-friendly product over one that integrated well with its SAP AG R/3 software.

It was a decision that project leaders are now trying to take back.

"We hemmed and hawed and decided to let users have their way," said Gary Banks, SAP project leader at the St. Louis-based chemical manufacturer. "We regret it. The technical interface has been too much. We will probably be walking away" from the more user-friendly product.

CLIENT/SERVER SOFTWARE

The hard decision that Monsanto faced is being played out in information technology departments everywhere. Users who make enterprise resource planning (ERP) systems the backbone of their corporate computing environments are finding that it affects all other technical decisions.

"You pick an application package, and with it comes an infrastructure that largely becomes your infrastructure," said Joshua Greenbaum, an analyst at Hurwitz Group, Inc. in Framingham, Mass.

Often, as in Monsanto's case, it may mean going with third-party software because it is more compatible with a chosen ERP system rather than a more functionally rich first choice.

But users at security equipment maker Sensormatic Electronic Corp. like the idea of standardization.

"Any software packages we pick must integrate with Baan, pure and simple," said Dennis Torrell, vice president of information systems at the Boca Raton, Fla., company. "In picking third-party packages, it's like wanting vanilla, chocolate or strawberry. They are all basically the same. This makes life more simple because now we say if it integrates with Baan, then part of our job is done."

"[Our use of R/3] is becoming a major consideration whenever we evaluate new hardware and software," said Diane Schwarz, manager of information strategy and tactics at Steelcase, Inc., in Grand Rapids, Mich. "One of the first questions we ask [vendors] is 'What is your relationship with SAP?'"

FALLOUT

Steelcase, an office furniture manufacturer, is feeling the ripple effect of its 2-year-old SAP project in areas untouched by R/3.

BRIT RUNION

"I now support sales and marketing information systems" that aren't part of the R/3 package, Schwarz said. "When we start thinking of putting in new data warehouses or data marts, we now have to care that we have SAP under our roof. We can't go out independently and buy [data mart] tools, even though we don't own SAP in this department."

That's because data that moves throughout the company flows from the ERP transaction software. So any attached software must be able to read that data and feed accurate data back into it.

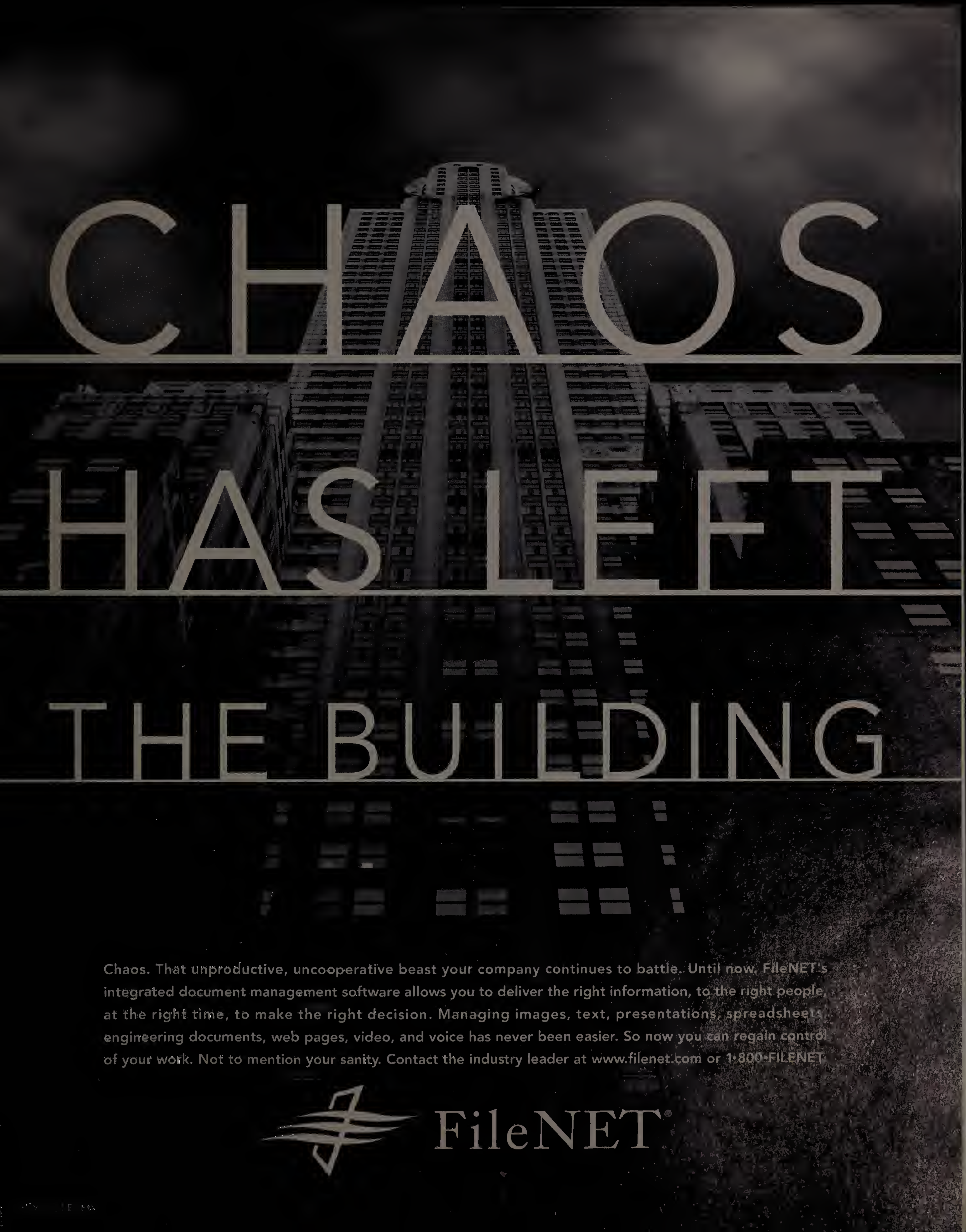
Harry Tse, an analyst at The Yankee Group, in Boston, said users are getting a variety of choices to tackle the problem as niche vendors jump on the ERP bandwagon. But that doesn't mean wrong choices can't be made.

Sometimes, the vendor underestimated the complexity of R/3. Other times, SAP itself hadn't built a good enough application programming interface.

With PeopleSoft in place, a centralized architecture committee will review all projects worldwide.
– Steve Cooper, Corning

Banks emphasized, however, that SAP is a far better system than the legacy mainframe and that the benefits of centralized transaction processing are worth the potential hassle.

Corning, Inc., a $4 billion glass and ceramics manufacturer, hopes to head off compatibility problems by using a centralized architecture committee that will review all projects worldwide. The manufacturer is standardizing on PeopleSoft, Inc.'s software, said Steve Cooper, director of strategic information systems at the Corning, N.Y., company. ☐



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Briefs

Intel revenue hits $25B

Intel Corp., based in Santa Clara, Calif., last week said its revenue for 1997 was up 20% from the previous year, to $25.1 billion. Intel also said the Federal Trade Commission won't block the company's proposed acquisition of Chips and Technologies, Inc. Intel credited Pentium II and MMX graphics technology sales for its success. Fourth-quarter revenue was $6.5 billion, up from $6.4 billion in the same quarter in 1996. Net income for 1997 was $6.9 billion, up from $5.2 billion the previous year.

Netscape to lay off 400

Netscape Communications Corp. estimated it will lay off 400 full-time employees and contract workers as part of its restructuring efforts, a spokeswoman confirmed last week. The company employs about 2,600 full-time staffers and 600 contract workers.

AMD cuts its losses

Advanced Micro Devices, Inc. posted a $12.3 million fourth-quarter loss on sales of $613.2 million — an improvement over a loss of $21.2 million on sales of $496.9 million a year earlier.

DEC streak continues

Digital Equipment Corp. has lengthened its run of profitable quarters to four, reporting income of $78.4 million on revenue of $3.3 billion for its second quarter, ended Dec. 27. That compares with a profit of $31.9 million on revenue of $3.4 billion in the same quarter a year earlier. Alpha servers registered a mere 2% increase during the same period last year, while sales of Windows NT products were up 94% over the same period last year.

Apple posts profits

Apple Computer, Inc. reported net income of $47 million for the quarter ended Dec. 26, compared with a loss of $120 million in the same period the previous year. But sales fell 26%, from $2.13 billion to $1.58 billion. This marks Apple's first profitable quarter since September 1996.

Prepaid licenses hurt database sales

By Craig Stedman

SOFTWARE LICENSING

THE PRACTICE of advance-selling large blocks of database licenses to users who activate them over time is biting back at vendors as the market matures and growth rates level off.

So-called "prepays" are contributing to the revenue shortfalls that companies such as Oracle Corp. and Sybase, Inc. are encountering, analysts said. As selling prices fall because of the growth of packaged applications and cut-rate Windows NT databases, vendors are finding that they can't always depend on the installed base for more sales, the analysts said.

Take Dunlop Tire Co., for example. The Amherst, N.Y., tire maker purchased a big batch of Oracle user licenses in 1993 to take advantage of discount offers, and it still hasn't deployed all of them.

"We really haven't spent money on databases in a while since we bought a lot more [licenses] than we needed up front," said Hugh Allan, manager of information technology at Dunlop. The 1993 purchase also covered related products such as Oracle's applications and development tools, he said.

The allure of prepayments for users is that vendors will discount prices up to 40% or more on such bulk purchases, said Richard Finkelstein, president of Performance Consulting, Inc., in Chicago.

That kind of savings is hard to pass up if budgets have room for software that isn't needed right away, Finkelstein said. Stashes of unused database licenses are "extremely prevalent," he said. "It's common for me to walk into a client site and find licenses that are inventoried and looking for a use."

When companies were more flush, vendors could usually keep revenues marching upward just by finding new buyers. But growth is harder to come by now that databases are becoming more commodity-like.

Oracle, in Redwood Shores, Calif., managed only single-digit database growth in the past two quarters. Meanwhile, Emeryville, Calif.-based Sybase this month said fourth-quarter 1997 sales and earnings will be lower than expected [CW, Jan. 12].

Vendors aren't taking the situation lightly. Sybase is accelerating a sales force restructuring, and Oracle said CEO Larry Ellison plans to tone down his network computer evangelizing and get more involved in the company's database business again.

The past two quarters were "kind of like a wake-up call," a spokesman said.

Prepaying isn't the only factor. "But the danger is that vendors can use it to make their numbers if they're short at the end of a quarter," said Merv Adrian, an analyst at Giga Information Group, in Cambridge, Mass. Doing that over and over isn't easy, he said. Some vendors that have been stung by prepays have tried to move away from them in recent years, most notably Sybase, Adrian said.

But Private Healthcare Systems, Inc. bought about 900 Sybase user licenses last spring, even though it won't deploy them all until mid-1999, said Lisa Thompson, vice president of business systems at the Waltham, Mass., managed care services firm. ☐

WHY BUY?

Factors that help hold down database sales:

- Canceled client/server projects that leave database licenses unused
- Prepayment for excess licenses that users bank for later deployment
- Intranet applications that reduce the need for distributed databases

Source: Performance Consulting, Inc., Chicago

Where Microsoft leaves off, tiny O'Reilly steps in

By Carol Sliwa

O'REILLY & Associates, Inc. makes World Wide Web server software that runs on Windows NT. That means its chief competitor is Microsoft Corp., which bundles its Web server with the operating system.

Yet somehow O'Reilly survives.

The privately held company in Sebastopol, Calif., ranked fifth in market share in a January poll of 1.8 million Internet-accessible Web servers. The poll was conducted by Netcraft Ltd., a U.K.-based consultancy. According to the survey, O'Reilly has 3% of the market, compared with Microsoft's share of 22% and Netscape Communications Corp.'s share of 10.5%.

"There's a very nice business in the cracks between what Microsoft and Netscape leave on the table," said Tim O'Reilly, president, founder and owner of the nearly 20-year-old company, which specializes in publishing no-nonsense computer manuals.

The company targets people at independent Internet service providers, software consultancies and other smaller companies who run a Web site and also make purchasing decisions.

"We're not trying to compete with Microsoft and Netscape in the Fortune 500 deals because they're going to say, 'Hey, who are you guys?' " O'Reilly said.

Not surprisingly, given its book publishing experience, O'Reilly tries to distinguish itself with extensive documentation about its products. The WebSite Professional server ships with two volumes that contain more than 900 pages that promise to educate and inform Web server administrators.

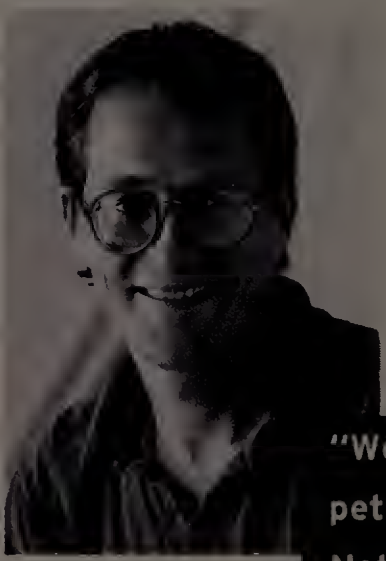
Another key distinction is that the O'Reilly servers support a variety of programming languages, tools and development environments, including Java, Perl, Python and Visual Basic.

"They have a large and loyal following amongst developers through their Nutshell series of books," said Michael Goulde, an analyst at Boston-based Patricia Seybold Group. And that, in turn, helped spur the company's following in the Web server market.

O'Reilly also branched out into other niche markets by selling chat software, a Web authoring tool for forms, and a Perl resource kit.

O'Reilly said last year's revenue was $35 million.

"If they were to be solely a Web server company, long term that could be a problem," said Heather Ashton, a research analyst at Hurwitz Group, Inc., a consultancy in Framingham, Mass. "They have other forms of business." ☐



"We're not trying to compete with Microsoft and Netscape."

– Tim O'Reilly
O'Reilly & Associates

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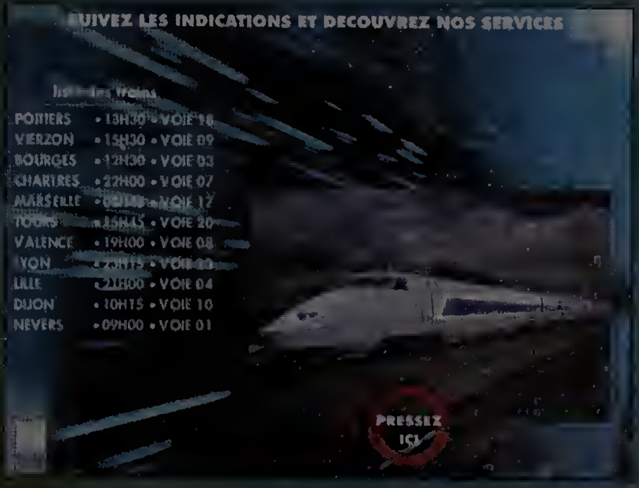

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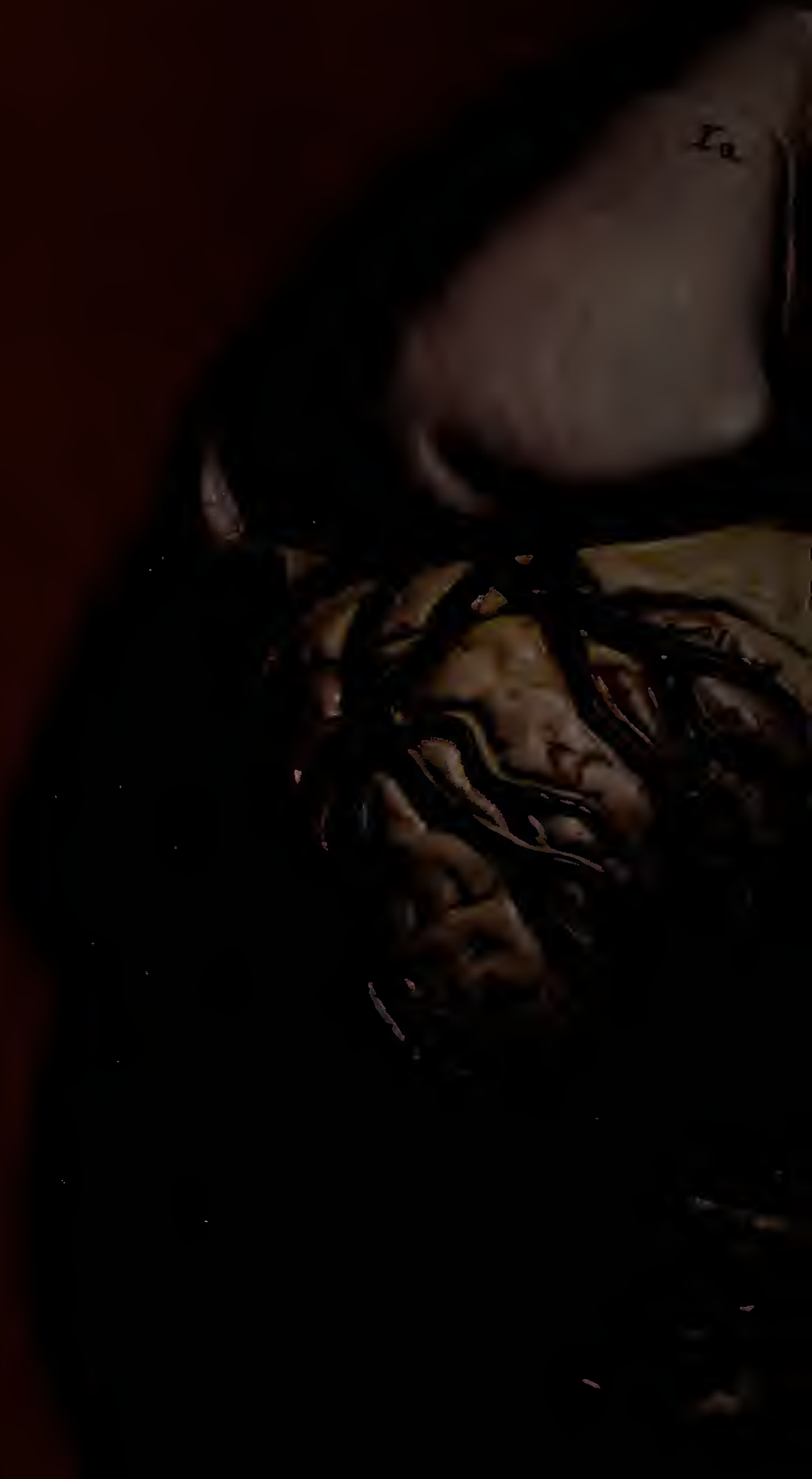

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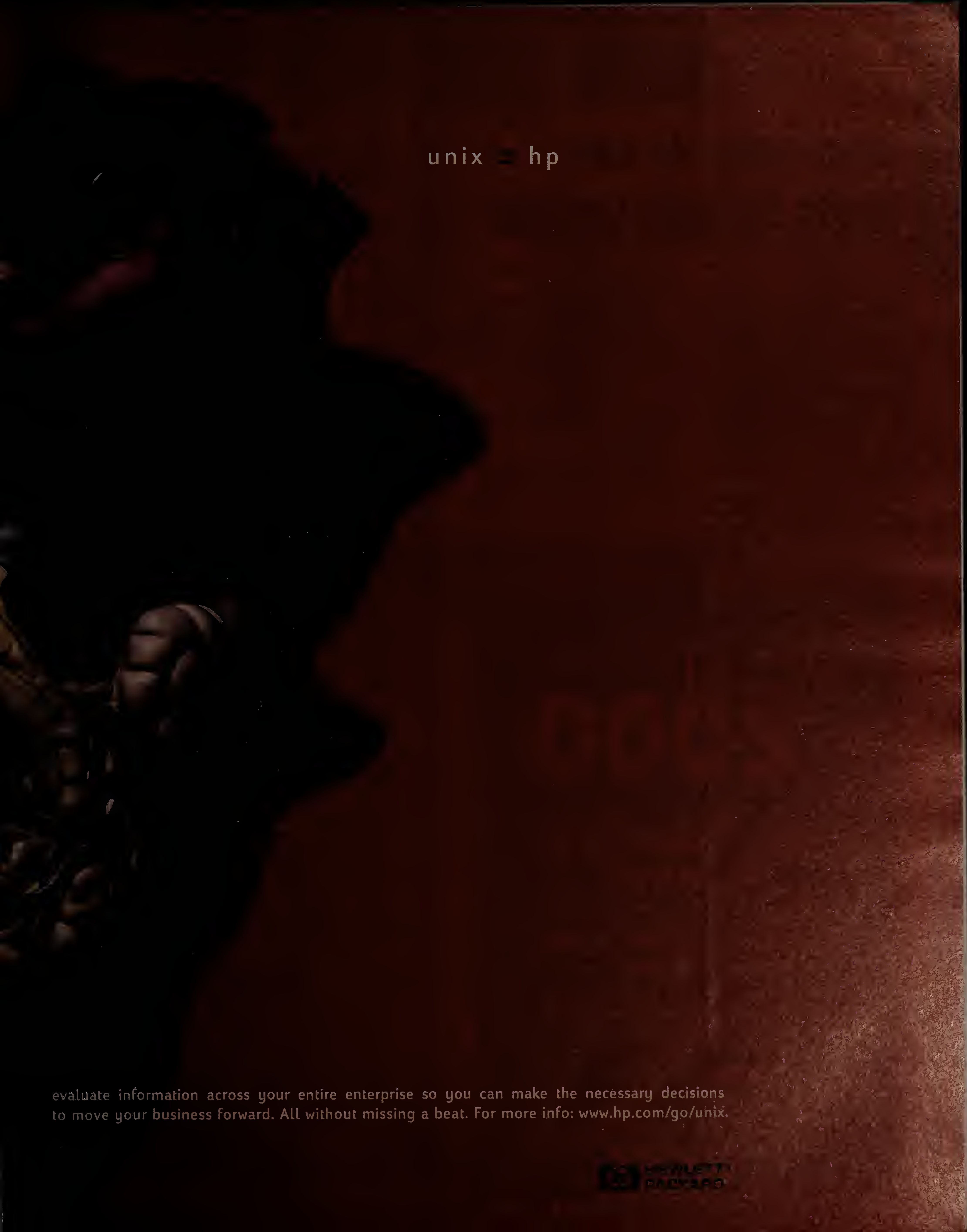

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Java holds its own, starts to make inroads

By Sharon Gaudin

NOW THAT JAVA has a couple of years under its belt and users have a few scrapes on their knees, mainstream corporate developers are hoping it is finally time to take off the training wheels.

Java — the language, the development environment and the platform — has gone through one hell of a test drive. It has fended off direct attacks from Microsoft Corp., struggled with its ambitious claim to fame of platform independence and grown into more than an amateur display of spinning coffee cups and barking dogs.

But throughout the turmoil and spit fights, Java has quickly become the Holy Grail for originator and main proponent Sun Microsystems, Inc.; garnered a cultish following of 750,000 developers; and worked its way into major corporate houses — all in just *two* years.

Not bad, considering that it took development language powerhouse C++ the same amount of time just to get its sea legs. In that time, Java has thrown the industry into a technical tizzy and spawned hundreds of Java-focused start-ups.

CROSS-PLATFORM KEY

And Java has made those inroads mainly because it is a cross-platform development language.

Corporate developers are turning to Java because they can create a Java-based application that will run on their Windows NT machines, Unix boxes and any Macintosh desktops, for instance, without having to rewrite it for each platform. That saves them time and frees developers to build new applications and spend less time reworking old ones.

Developers also like the fact that Java is a powerful language, much like object-oriented cousin C++. But it is easier to use than C++. Developers are made to jump through fewer hoops and are given fewer ways to make mistakes.

Developers haven't liked Java's speed, however. Compared with C++, it has been downright draggy. But that problem seems to be on the mend with new just-in-time compilers that will add some pace. And in June, Sun is expected to release its highly anticipated HotSpot Virtual Machine, which promises to match Java's speed with C++.

But with all the advances Java is making, developers still worry about how Sun's gunfight with Microsoft will play out. Microsoft wants to derail Sun's fun because platform independence means users could look outside Windows.

Should developers invest in technology that is so heavily and frequently lambasted by Microsoft with all its industry clout and financial support? It is a question many are chewing on before jumping into the arena.

And Sun this past fall turned the spotlight full force on itself by becoming the official submitter of the Java standards effort to the International Standards Organization.

Sun, which has always called Java an open technology, now is the only company holding the opener. ☐

FAQs: Dissecting the language

Q: ***What are Java's good points?***

- It offers platform independence, so users aren't locked into one platform or one vendor
- It is a powerful language that is easier to use than C++
- Sandbox security model keeps applets away from critical systems functions
- Lightweight code moves quickly across the Internet

Q: ***What are Java's bad points?***

- Achieving platform independence still depends on correcting variations in the way applications and Web pages appear on some platforms
- Developers often consider sandbox security too restrictive
- Its speed lags behind powerhouse rival C++
- It is a technology caught in the cross fire between Sun and Microsoft. Users are left waiting for the smoke to clear before they choose a camp in which to pitch their tents.

Q: ***What's up with Java Development Kit 1.2?***

A: Sun is promising users the magic mix of speed, security and seamless platform independence, all wrapped up in the latest version of its Java Development Kit (JDK). JDK 1.2, which went into beta last month and is slated to ship in June, is expected to add the following:

- Permission management for security
- Java Foundation Classes, which will give the development environment capabilities such as drag-and-drop and two-dimensional imaging
- The highly anticipated HotSpot Virtual Machine, which is expected to greatly increase Java's speed

Q: ***What's happening with standardization?***

A: Only a few months after members of the International Standards Organization approved Sun to be Java's official submitter, the specifications for the language, the virtual machine and the application programming interfaces are being cleaned up and prepped for official submission, said Jim Mitchell, vice president of technology and architecture at JavaSoft. It will be six to eight months before the specs are submitted for review, he said. Sun needs a two-thirds vote for acceptance, but expects to spend seven to 11 months negotiating and answering technical and political questions before getting a go-ahead. Making Java a standard means users will be able to depend more readily on a common look and feel when using the language and the platform.

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Users praise business benefits of Java

▸ *Language eases creation of Internet, network computer apps*

By Sharon Gaudin

WHO'S USING JAVA — and what are those companies using it for?

Two years after Java's official delivery by Sun Microsystems, Inc., the language is a long way from replacing any mainframes or sending Windows packing.

Still, Java is well past the toy-technology stage. At some large companies, it is making inroads as a solid tool for important applications.

And in some information systems shops, Java has already proved its worth on major projects.

The early candidates have an Internet-centric flavor, such as stitching together legacy systems to display them on the World Wide Web or building programs for network computers.

But users also are discovering Java's pleasant little secrets: Development time can be slashed with Java compared with languages such as C++, and Java offers far greater flexibility than Web-based languages such as Hypertext Markup Language.

STEVE BORNS

Service Merchandise's Dan Mushrush says Java is helping him build up his networked system because it is lightweight and runs well over the Internet

•••••

The Home Depot, Inc. is doing some building of its own and developers there hope Java will ease some of the growing pains.

The Atlanta-based chain of home improvement superstores is looking to change the PCs and registers in its 626 stores to network computers, and it plans to use Java to build applications for the new system.

"I want [network computers] so I don't have to have a hard-drive to deal with every time I turn around," said Curtis Chambers, architect of distributed applications at The Home Depot.

"That way I can keep my cost per unit down, because I don't have so much invested in hardware. I can centralize my applications and distribute them where I want. Java will build me those applications," Chambers said.

Michael Anderson, director of IS at The Home Depot, said Java is an easier language with which to build, and that speeds up development time.

"Based on the way Java is architected, some of the heartburn we've had with our PC applications has been eliminated. We'll cut our support by 75%," he said.

•••••

Service Merchandise Co. is using Java to redefine how it sells to customers.

The Brentwood, Tenn.-based retailer is moving its inventory, shipping and gift registry applications onto the Internet to increase employee and customer access. And it is using Java to connect those disparate processes and make them look like one application. "We put these processes onto the Internet to tie all our stores together," said Dan Mushrush, director of new technology at Service Merchandise. He said Java is helping him build up this networked system because it is lightweight and runs well over the Internet.

And because Java is a cross-platform language, Java-based applications can tie into Unix or Windows NT boxes, so Mushrush said he doesn't have to worry about costly hardware changeovers in various store and warehouse locations.

•••••

Money magazine built its Web site using Java so it could offer its readers customized pages of investment advice.

Dan Woods, director of editorial technology at Time, Inc. New Media in New York, said he created nearly the entire *www.money.com* site using Java and Sun's Java Web Server. That sliced the length of the project by two-thirds and enabled the site to handle 3 million page views per week. "When you navigate through the site, nine out of 10 Web pages coming at you come through the Java Web Server," Woods said. "Java is a cleaner language, so it speeded up the whole development process. There's a whole class of bugs in, say C++, that we don't even have to worry about with Java."

STEVE BORNS

Dan Woods at Time, Inc. New Media says Java's dynamic page-creation capabilities have enabled him to build a site to which he can sell custom subscriptions

Woods said Java's dynamic page-creation capabilities have enabled him to build a site to which he can sell custom subscriptions.

"Our site is about investment advice, and we can sell access to other companies — like investment houses — that want to give something away to their customers for signing up," he said. "With the Java Web Server, we can recognize each user coming to the site and create a dynamic page just for them with their company's logo on it. That's making us some money." □

Frank Hayes, Computerworld's West Coast bureau chief, contributed to this report.

UNSCRAMBLING THE JAVA JUMBLE

	Sun	Microsoft	Netscape
In a nutshell	Java is Scott McNealy's road into the spotlight – good for the client, the server, the Internet and the kitchen sink.	Java is a nice enough language, but all you need is Windows.	Java is another weapon to fight off Microsoft's intrusion in the browser market.
Position on Java	The platform-independent development environment for PCs, NCs, smart phones, smart cards, toasters, air conditioners, etc.	Java is a good language but a useless platform in the Windows world.	Pure Java is crucial for cross-platform business applications on intranets, extranets and the Internet.
Product support	Sun and its products support the full Java Development Kit (JDK) 1.1. That's not surprising since the company developed it.	Microsoft has a hot-selling virtual machine, Visual J++ development tool and application foundation classes. Sun is suing Microsoft over its Java implementation in its Internet Explorer 4.0.	Netscape Navigator 4.04 supports most of JDK 1.1, but not the security model. The company expects full JDK support by mid-1998.
Industry support	Sun has put together a high-tech brat pack that includes IBM, Oracle, Netscape and Novell.	Who needs support, they're Microsoft! When asked who their supporters are, the company said, "Everyone else."	Netscape has partnered with Sun and third-party developers.
What's coming	Expected in June: HotSpot Java Virtual Machine, Java Foundation Classes, Java Blend development tool and JDK 1.2	A new version of Visual J++ is due later this year.	The next major version of Navigator in mid-1998 will have full JDK support. Support for JDK 1.2 is planned for the same quarter Sun releases it (expected Q3). And Netscape is working on all-Java version of Navigator, dubbed "Javagator."

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OPINION

Calling all spin doctors We have a national emergency. Nerds have an image problem.

OK, quit laughing.

This is serious stuff from a task force of researchers (who are probably also nerds) that has called for a national publicity campaign [CW, Jan. 12] to polish the dorky image of computer programmers and other IT professionals.

The argument goes that students aren't flocking to computer science degrees the way they did a decade ago, apparently out of fear for their social lives. That disinterest is draining the talent pool and aggravating the high-tech labor shortage.

Did I say shortage? That's too tame. It's a crisis. Ask the Information Technology Association of America, a trade group that claims there are 350,000 unfilled high-tech jobs — roughly 10% of IT jobs at U.S. companies. High-tech recruiters (rarely nerds themselves) are having creative conniptions trying to find acceptable candidates. There's certainly no shortage of recruiters, who in some cities may outnumber IT folks.

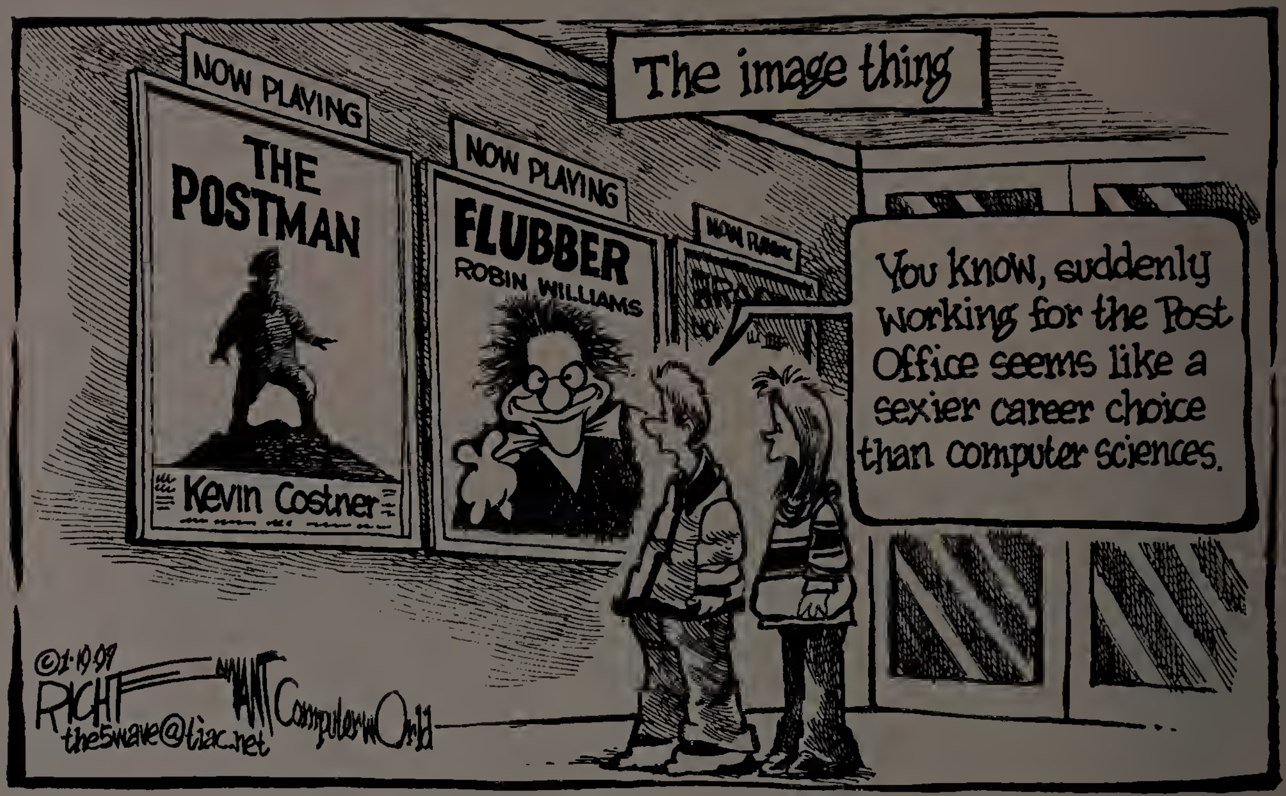
Enter Norman Matloff (very likely a nerd), a professor of computer science at the University of California, Davis. He takes quite a contrarian view, daring to suggest that this whole labor shortage gig has been wildly exaggerated (see "Professor questions IT labor shortage" at our Web site, *www.computerworld.com*).

The professor's coherent counterargument is that the shortage is really the result of overly picky hiring practices that focus on just three classes of employees: recent college graduates, foreign programmers and workers with specific skills in hot technologies. Matloff contends that there are plenty of midcareer programmers and over-35 IT pros, who are being shunned by employers seeking cheaper labor and unwilling to retrain new hires.

So how real is the emergency in high-tech hiring? Only the spin doctors (definitely not nerds) know for sure.

Maryfran Johnson

Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*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LETTERS

Hotshot coders inspire mixed feelings

Your story on super programmers [CW, Nov. 24] is right on target. I recently left a Fortune 100 company to start my own systems integration company. The corporate life is very stifling, with politics and territory battles, but consulting offers great freedom to do what is best for the customer.

Thanks for the great article.

Dayakar Veerlapati
President
Seven Seas Technologies, Inc.
Ballwin, Mo.
sstech@inlink.com

owerful? Janet Reno think so. We asked opinion. Page 33
WORLD
Super
PROGRAMMERS

I, for one, will not pay $100 per hour to a "super programmer" like Edward Barron who does not seem to understand that "debugging and other painful stuff" is all part of software development.

Why do we think someone like that is a gifted programmer? Because they can hack together some code and want to walk away before someone tests it to see if it works?

Anthony Cowden
Sonalysts, Inc.
Waterford, Conn.
cowden@sonalysts.com

Is a crystal ball available?

I find a paradox between the high salaries reported by your skills surveys ["Paying through the nose," CW, Nov. 17] and my own experiences. Issues such as mass layoffs, age discrimination, outsourcing and technological obsolescence that you have reported on affect my employment possibilities dramatically.

Perhaps *Computerworld's* IT Careers section could do a rough categorization of opportunities, finding out whether employers expect the profiled positions to still exist in some form in five years.

Chuck Kollars
Ipswich, Mass.
ckollars@shore.net

Cartoon wasn't appreciated

As someone who is open-minded enough to have used Novell, Windows, DOS, OS/2, and Apple, I resent the snide implications of your Nov. 24 editorial cartoon. It implies that anyone who talks against Microsoft is a religious bigot, that there is no rational position in favor of alternative products and that only a narrow band of zealots is dissatisfied with Microsoft's products and practices. Perhaps you should take off your Windows-colored glasses and look at the other perspective. Microsoft is led by a self-anointed band of would-be saviors. Windows is a cult.

Tom Nadeau
Dickson, Tenn.

Java statement clarified

I am responding to reader Jon McGuire's letter in the Nov. 17 issue ["Java is a language, not a religion"] about my comments in a letter to *Computerworld.*

While it is true that I am fanatical about pure Java, the statement Mr. McGuire attributed to me is far from the truth.

I never said "Microsoft-licensed Java will be Windows and ActiveX, which is not what the public wants." I said a Java system that doesn't fully implement the facilities and APIs of the Java specification, as set forth by Sun, would then be "Windows and ActiveX, which is not what the public wants."

As to which vendor could implement such a system best, I'd have to agree with you. I thought Microsoft would be best suited. It's too bad they don't seem to be up to the task.

Will Java systems give the public what they want?

Dan Pacek
Jefferson, Mass.
dpacek@tesent.com

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Writing counts

Peter G.W. Keen

Welcome to another year of paper as the main medium of information exchange. Long may it remain so.

I should be an easy sell for electronic anythings and Web-based whatevers. My laptop is an almost permanent extension of my hands. PowerPoint and I have an intimate friendship. E-mail has quite literally changed my personal life by bringing me back in contact with friends and family.

But I will stick with paper. Paper works. Why?

I like paper. It's so user-joyful — magazines that are portable, books you want to introduce to all your friends, faxes and photocopies you can huddle over with a colleague. Instead of creating the paperless office, word processing has been a boon to paper makers. How many trees die in vain because we reprint documents? It's also the base for communication about IT. Go into any large bookstore, and you'll see rows of books about the Internet, multimedia, Windows, Java and so on. In my local Borders bookstore, the IT section is the largest single subject area.

The main reason I prefer paper to the Web and other electronic media is that it attracts people who can write.

But the main reason I prefer paper to the Web and other electronic media is this: It attracts people who know how to write. The many skilled people in electronic publishing, webzines and multimedia don't as yet have a professional writing tradition or a style of writing for their new media. Many of them don't seem to respect writing.

Writing is a difficult craft. Somerset Maugham said: "There are three rules for writing a novel. Unfortunately, no one knows what they are." Writing is about "voice" — giving readers a sense you are speaking directly to them. It's about mood, pace and organization. It's not just about words.

In the IT field, there are words everywhere, such as 800-page manuals for Microsoft Word. The Internet is a supermarket filled with words where you need Yahoo and AltaVista to find a needle in an infinity of wordstacks. But I don't connect with those words, no matter how multimedia embellishes them. Those words don't speak to you. In many instances, they don't respect the rules of written communication, such as providing punctuation that clarifies meaning. Most writers online clearly have no editor. In all the books I have written, I estimate that the editing process was at least as long as the writing process. For this short *Computerworld* article, I will get and respond to at least two E-mail messages asking for clarifications and suggesting improvements. Why? Because writing matters.

It should matter to IS people, too. You wouldn't voluntarily stay and talk to a cocktail party bore. You don't stay with an electronic bore. Bad writing — as you'll find in most software manuals — is like being stuck with a cocktail party drunk.

The Internet and intranets have been driven by people who are not exactly famed for their verbal and written communication skills and interests. They mostly come out of the analytic disciplines of computer science and engineering. They have a wonderful passion for technology but not for writing. The next era of "Life on the Internet" should be driven by people who have a passion for communication.

So liberal arts majors of the world, unite. Your time is coming. Graphic arts experts — you know how to design Web sites. History students — you can organize complex written materials. English literature graduates — we hold words as the currency of human interaction and shared understanding. IS needs us. □

Keen is the author of The Process Edge: Creating Value Where it Counts *(Harvard Business School Press). He can be reached at peter@peterkeen.com.*

What makes E-mail worth forwarding?

Michael Schrage

While I was helping a friend draft an online proposal on her PC, she received a very lengthy and (ultimately) very funny joke via E-mail. We read it, laughed and then both blurted out, "We should send this to Richard." So we did.

We sure hope Richard liked his joke. Lord knows, most of the E-mail humor I get shouldn't have been conceived, let alone forwarded. That got me thinking. One of my first *Computerworld* columns explored "bozo filters" — those software applets designed to blot out the pea-brained messages and mutterings proffered by online bozos and spammers. The practice and politics of who bozo-filters whom says a lot about an organization. Do you know who's bozo-filtering you?

But the joke we sent Richard made me wonder about the bozo-filter opposites. What about the messages and mail that get forwarded? Who tracks them? Just as it's revealing to know who in the organization gets bozo-filtered the most (and who uses bozo filters the most), it's useful to know who — and what — gets forwarded the most. Is it jokes? Chain letters? cc:s? Rumors? News? Memos?

If an organization really cares about the quality of its intranet communications, then those kinds of questions become more important.

The personnel manager who sends E-missives that two-thirds of her recipients send on to others — and then, in turn, get forwarded to another dozen people or so — is probably writing something worth reading. The woman who has the most mail in the organization forwarded to her . . . why? Is your organization more likely to forward a joke than an Excel spreadsheet? A rumor over a PowerPoint slide presentation?

A lot of organizations analyze their E-mail traffic. Tracking whose stuff gets forwarded and why is far less common.

What inspires someone to hit "cc:"? In intranet communications, these questions matter.

I've long felt that a nifty Ph.D. thesis would be to create a smart intranet product called "RumorNet." RumorNet would be a neural net/genetic algorithm-type package that would craft rumors — Ms. Grundy is transferring to accounting ... We're going to have major layoffs ... The McKinsey consultants are coming ... Ted and Lucy are having an affair — and send them out on the intranet.

RumorNet would then track which rumors caught on and spread and which died on the vine. The algorithms would evolve the rumors for "fitness" and monitor the best "vectors" for effective transmission.

RumorNet, of course, would offer a terrific medium to test and explore an organization's human network. I'm sure we'll see some version of RumorNet on the market by 2001.

In the meantime, organizations are missing a real opportunity to discover how they really communicate. Smart companies should explore rewarding those individuals and teams that have their smart E-mail forwarded most often — just as they should reward people whose work is most frequently cited. It's not just the intended recipients of a memo or a message who can add the most value or offer the most useful response — it can be the unintended and unknown recipients who can make the biggest difference.

Ask yourself: Are you being forwarded the right messages? Are you being creative in what you are forwarding? That's not a joke, and it's not an idea to be bozo-filtered, either. □

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

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Briefs

This year's average starting salaries for graduates with a bachelor's degree in:

Computer engineering	**$39,593**
Computer science	**$38,475**

Note: Average salaries are 6.3% higher than last year

Source: National Center for Education Statistics, Washington

Rating severance pay

Senior-level managers and officers displaced by computer companies received on average a mere 1.6 weeks' severance pay for every year of service, among the lowest levels reported by industries nationwide, according to Manchester Partners International, a Philadelphia-based consultancy. In contrast, laid-off banking and finance officials received two weeks of pay for every year worked. The survey was based on 460 U.S. companies.

Georgia Crown system

Georgia Crown Distributing Co., a Columbus, Ga.-based distributor of spirits, wine and beer, has purchased software from JBA International Ltd., in Rolling Meadows, Ill. The System 21 software will provide integrated systems that will replace existing beverage distribution software. Terms weren't disclosed.

Viasoft buys in to Y2K

Viasoft, Inc., an asset management vendor in Phoenix, has acquired EraSoft Technologies, Inc., a Calgary, Alberta, provider of year 2000 assessment and analysis software for desktop environments, for $7.75 million cash.

Heart monitor project

The Mid America Heart Institute has installed a 128-channel Networked Monitoring system from Tustin, Calif.-based VitalCom, Inc. that will allow it to continuously monitor patients' heart rhythms from a centralized station. The institute is located at St. Luke's Hospital, a 440-bed teaching hospital in Kansas City, Mo.

Recruiter drives automation project

▸ *System yields $1.2M savings over two years*

By Thomas Hoffman

CAROLYN SCHNEIDER, a college theater major, became the unlikely heroine in a human resources automation project that saved her company more than $1 million.

When Schneider, 39, joined Ornda HealthCorp as director of executive recruitment in July 1995, the Nashville-based manager of acute care hospitals had no way to track job applicants at 50 hospitals.

Having orchestrated the installation of an automated recruiting system at Healthtrust, Inc., her former employer, Schneider began lining up her ducks for a rollout of a new system at Ornda. She planned to use human asset management software from Resumix, Inc., in Sunnyvale, Calif.

Schneider had senior management's blessing to install the system before she started working at Ornda. But once on board, she quickly found resistance from the company's information systems department. Ornda's IS group didn't support Unix and told Schneider that it couldn't support the Resumix system.

"But I knew I could" get the system installed, she said.

So Schneider hired Resumix to install the system. After working with the system on a daily basis since it went live in January 1996, Schneider said she learned enough about Unix "by osmosis" to become the Resumix system administrator.

Ornda's Carolyn Schneider

The company's IS department resisted installing the Resumix system, so she did it herself

"I'm a right-brainer. I'm a theater major, but I can get in [Unix] and get by with the best of them," Schneider said.

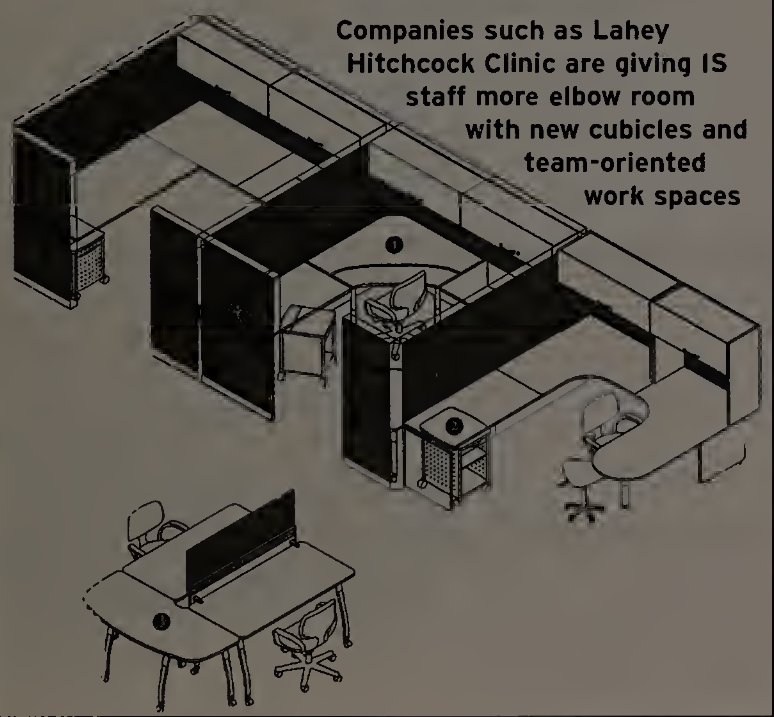
It's a good thing for Ornda that she did.

SIGNIFICANT SAVINGS

Thanks to a system that automatically matches job openings with information from a database of applicant resumes, Ornda was able to knock more than $1 million off its annual recruiting costs in 1996, from $2.3 million to $1.3 million, Schneider said.

As the end of last year approached, Ornda was on track to slash another $273,000, or 20%, from its recruiting budget, Schneider said. That isn't a shabby return for a $100,000

Recruiter, page 44


Companies such as Lahey Hitchcock Clinic are giving IS staff more elbow room with new cubicles and team-oriented work spaces

COURTESY OF TEKNION

• Office facilities, location as recruiting tool

Firms spruce up work space to lure IT talent

By Tim Ouellette

WHEN COMPETITIVE salaries and benefits aren't enough to attract scarce IT workers, some companies are prepared to create a positive work environment any way they can.

The Lahey Hitchcock Clinic, in Burlington, Mass., for example, used a completely new building as a tool to attract information technology staffers. The idea was to promote the notion that more work space can mean a more creative and enterprising work environment.

As a result, the new facility is expected to provide the IT department with more space — and more opportunity — to quickly boost its programming staff from 42 to 52 workers,

Firms spruce up, page 44

Health care organization heals IS wound with NCs

By Randy Weston

IMAGINE THIS IS support and maintenance scenario: Your company runs 235 nursing homes and long-term care facilities spread across 25 states from Florida to Hawaii. Each site runs DOS-based applications on PCs that facility directors and nurses must support themselves. And an aging mainframe with a serious year 2000 problem supports your headquarters in the remote location of Sioux Falls, S.D.

Welcome to the information systems nightmare of the Evangelical Lutheran Good Samaritan Society, Inc.

NO SUPPORT

"It's driving us crazy trying to keep up with maintenance and support, and we don't have technical people in these centers," said Rusty Williams,

NCs, page 44

CARETAKERS

Company: Evangelical Lutheran Good Samaritan Society

Business: A nonprofit organization that runs 235 long-term care facilities, including nursing homes, assisted living and HUD housing for low-income senior citizens

Location: Headquarters in Sioux Falls, S.D.; operates in 25 states

Employees: 21,000

Patients: 28,000

Annual budget: $750 million

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Organization turns to NCs

CONTINUED FROM PAGE 41

chief information officer at the $750 million nonprofit organization.

"We're asking directors and nurses to take care of applications. We are taking away from their focus, which is serving the patient," he said.

The 75-year-old society is turning to a network computing architecture to solve its problems.

Once the project is completed, the organization's core financial, human resources and other operation management applications will run on a central server in Sioux Falls. Nursing homes and other sites will access the applications through World Wide Web browsers on 1,000 to 1,500 IBM network computers.

RISKY BUT NECESSARY

It is a pretty forward-thinking and relatively costly plan for an organization founded by a Lutheran minister affectionately known during his time as the Rev. August "Dad" Hoeger. Williams said the two-year project has a $10 million budget.

But it is the only answer Williams' office could adopt that would allow Samaritan's directors and nurses to stop being IS managers and return to being caregivers to the society's 28,000 elderly and disabled residents.

"It's pushing us closer to the bleeding edge than we'd like to be," Williams said, referring to a relatively new system that uses network computers and applications based on the Java computing language.

> **"It's driving us crazy trying to keep up with maintenance and support, and we don't have technical people in these centers."**
>
> **– Rusty Williams, CIO, Evangelical Lutheran Good Samaritan Society**

Doug Lynn, an analyst at Meta Group, Inc., in Stamford, Conn., warned that users who decide to run applications from central servers using wide-area networks and network computers will need to make sure they have enough bandwidth and back-up networks to handle the load.

"The seduction of thin clients and Web browsers is great, but you have to consider that network availability is mission-critical," Lynn said. "People say the network is always there, but if it goes down, then users are left high and dry."

The society is building its own proprietary frame-relay system to meet its needs.

Williams said an IBM RS/6000 SP server will be used at the Sioux Falls headquarters to run a suite of financial and human resources applications from Lawson Software, Inc., in Minneapolis.

His office is shopping for a suite of niche health care software products to also fit into the fold. And approximately 1,000 to 1,500 IBM network stations will be installed across the company to access the applications using Web browsers.

YEAR 2000 ISSUE

Hastening the project is a looming year 2000 problem. The current system, an aging 4381 IBM mainframe with homegrown DOS-based applications running on PCs at the facilities, has less than two years of life left in it. The organization expects to save 60% to 70% on maintenance and support costs when the project is done.

Williams said Samaritan plans to roll out human resources applications in the spring.

Financial applications are set to follow in July, with all the centers up on the core applications by year's end. The niche long-term care products are to be up and running by the end of next year. ☐

Recruiter drives automation project

CONTINUED FROM PAGE 41

investment in software and hardware, including a Sun Microsystems, Inc. Unix server.

Schneider said she tried to help Ornda's IS department understand the rationale behind the Resumix system and what it could do for the company.

Schneider ended up acting as a liaison between the recruitment department and Resumix to help answer questions the IS department had about the impact the system would have on Ornda's network.

That helped Schneider reduce her department's reliance on IS to support the system, which in turn helped smooth her relationship with the group.

The bulk of Ornda's IS department and operations have since been outsourced to Perot Systems Corp., in Dallas, Electronic Data Systems Corp., in Plano, Texas, and Systems Management Specialists, in Santa Ana, Calif.

ADDITIONAL FEATURES

Online systems such as Resumix and ResTrac Hire from ResTrac, Inc., in Dedham, Mass., are not only good at tracking applicant resumes that have been scanned or faxed into the system, but they can also help corporate recruiters identify talent from within by matching experience with job openings, analysts said.

The search-and-match capabilities of software such as Resumix can help companies fulfill "the dream of finding the rocket scientist in your janitor," said Mark Huey, an analyst at Meta Group, Inc., in Stamford, Conn.

Santa Barbara, Calif.-based Tenet HealthCare Corp. acquired Ornda in January of last year, and the new owner was impressed enough with Ornda's Resumix payback to begin rolling out the system in its Dallas operations center and piloting it in New Orleans.

Mike Duda, manager of recruitment at Tenet Health-System in Dallas, said he has high hopes for the Resumix system.

"It's impossible to keep track of individuals with desirable skills, so the system should help us cut down on recruiting time by making those matches for us," Duda said. ☐

Firms spruce up work space to lure IT talent

CONTINUED FROM PAGE 41

said Anne Fitzgerald, Lahey's director of IT at the health center.

That's because space was so tight in the old facility that some IT staff had to work in the basement of the nearby hospital building. Though the expansion was done to free up existing clinic staff from those tight quarters, the result could be very positive for Lahey's IT recruitment efforts.

"Recruitment should be easier now. The previous building was a real turnoff to incoming candidates" because it was so cramped, Fitzgerald said. "Now the building gives both existing employees and prospective workers a sense of commitment from the company."

MANY DOING THIS

Lahey isn't alone in this type of effort. At a time when companies are competing hard for fewer IT professionals, such a change of address could be an important carrot for technical recruiters to wave.

"In some cases, we have even seen companies that get the reputation of being a sweatshop," making it hard to get new or contract employees in there, said Betsy Schroeder, a technical recruiter at Interactive Business Systems, Inc., in Dallas.

"In general, we see companies trying to change their environment and upgrade their facilities as a way to attract staff," she said.

At Lahey, IT was one of three divisions that moved into the building in October. Company officials said it has all the amenities of modern office complexes.

The clinic is already promoting the new building in recruitment ads, saying it has "given us the room to expand our information technology area" and that employees will have more "freedom, resources, support and opportunity" to do their jobs.

GOOD RESPONSE

The response has been "incredible," said Carol Yellen, Lahey's technical recruiter. Previously, "when I brought people through the other facility I could almost feel their stomachs turn," she said. "Programmers would like to have their own space instead of a desk in among a bunch of people."

That's why Fitzgerald and her staff helped design the new IT work space, including room for things they didn't have before such as separate cubicles, a reference library and printing areas.

More than 70% of large companies are building open and shared workspace areas into their office plans in an effort to keep and attract employees, according to a report by Knoll, Inc., an office design firm in Boston.

> **"In general, we see companies trying to change their environment and upgrade their facilities as a way to attract staff."**
>
> **– Betsy Schroeder, technical recruiter, Interactive Business Systems**

For example, when World Wide Web design firm Digit Interactive wanted a new headquarters, it didn't want to locate near other high-tech firms in the Ottawa suburb of Kanata.

THE RIGHT IMAGE

Instead, "we went on an extensive search when planning for our new headquarters," said Nathan Rudyk, managing partner and president of the company, which is based in Ottawa.

"We wanted to find the space that projected the image of our company. With a young Web company, that is the downtown area," he said.

That means the office is closer to the city's artistic and multicultural neighborhoods that offer the best IT staff for Rudyk's business.

"You have to take a look at your potential recruits and tailor the work environment to attract them," Rudyk said. ☐

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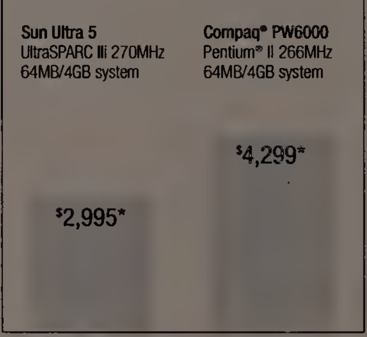

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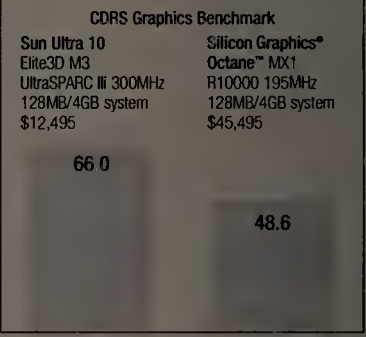

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True Resolution	1,024 x768 (XGA)	1,024 x768 (XGA)	1,024 x768 (XGA)	1,024 x768 (XGA)
Landscape/Portrait Modes	Yes*	Landscape	Yes*	Yes*
OnView® Controls	Yes	Yes	Yes	Yes
ViewMatch® Color	Yes	Yes	Yes	Yes
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Built-in Audio	1.0 Watt x 2	No	1.0 Watt x 2	1.0 Watt x 2

*Utilizing supplied Perfect Portrait software. May not be compatible with all software.

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The Internet

Electronic Commerce • The World Wide Web • Intranets

Briefs

Microsoft gets graphic

Microsoft Corp. has posted to its World Wide Web site (*www.microsoft.com/xml/xsl/msxsl-f.htm*) a technology preview of its Extensible StyleSheet Language (XSL) processor.

The processor will allow developers to transform Extensible Markup Language data into Hypertext Markup Language, generating a user interface for the data. Future versions of the Internet Explorer Web browser will support XSL.

Online briefcase

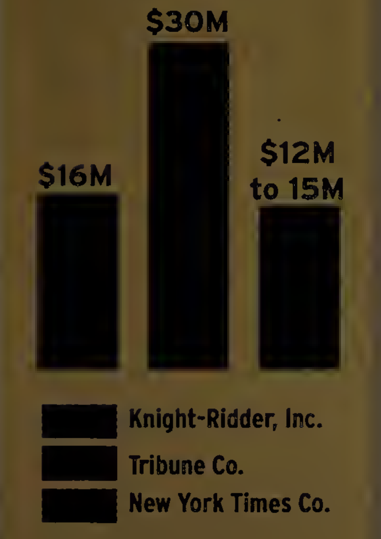
On Jan. 21, Visto Corp. in Mountain View, Calif., will begin offering commercial access to a version of its virtual briefcase with a new interface and better performance.

Visto Briefcase will allow users to automatically store work files, electronic mail and contact and scheduling information on a secure server over the Internet. Users can access the files over the Web from any location and synchronize it with popular organizers.

The introductory price is $9.95 per month and includes 20M bytes of space. The regular price is $19.95. Users can try the service for free for 30 days before subscribing at *www.visto.com.*

PAPER CHASE

Estimated losses by publishing Web sites last year



Source: Editor & Publisher Interactive (*www.mediainfo.com/ephome/*)

Build community, build a market

▸ *Tripod.com among busiest sites on the Web*

By Sharon Machlis

EVERYBODY KNOWS what is popular on the World Wide Web. Cable News Network. USA Today. The Weather Channel. Tripod, Inc.

Tripod?

Yes. The 50-person company nestled in the Berkshire Mountains town of Williamstown, Mass., is playing in the Internet major leagues, thanks to a strategy that targets the hot 18- to 34-year-old demographic group, among the world's most Web-savvy. Tripod.com now consistently shows up on lists of the top 20 most-visited sites.

Web-rater RelevantKnowledge, Inc. said Tripod was the 15th most-visited site in December, with more than 2.3 million individuals checking in at least once, edging out CNN, Amazon.com, Inc. and Time, Inc.'s Pathfinder.com, among others. Tripod said it has more than 860,000 members and 1.4 million member-created pages.

"Generally, they've been pretty successful in terms of online promotion," said Patrick Keane, an analyst at Jupiter Communications, Inc. in New York. And mainstream advertisers have taken note.

Launched in April 1995 as an information resource for young

Tripod, page 50

JOHN SOARES

Don Zereski and Margaret Gould-Stewart said helping Gen-Xers build personalized spots on Tripod's site drew a bigger, more loyal audience than they expected

E-commerce driving security push

▸ *SET protocol put on view at conference*

By Laura DiDio
SAN FRANCISCO

USER DEMAND for secure electronic commerce drove cryptography vendors into a frenzy of alliances and new product announcements at last week's RSA Data Security show here.

Users want to secure voice, data and electronic-commerce applications over the World Wide Web.

"Cryptography has been around for over 20 years, yet we've seen little in the way of technical advances until now; it's really still in its embryonic stage," said Carl Howe, director of network strategies at Forrester Research, Inc. in Cambridge, Mass.

But the demand to do business over the Internet is changing all that.

Among the key technologies demonstrated were implementations of the next-generation Secure Electronic Transaction (SET) 1.0 protocol, which will let businesses scramble sensitive data such as credit-card and account numbers. Version 0.0 of the SET standard has been available for about two years; the 1.0 specification is slated for completion this spring. At least a dozen vendors are readying SET 1.0-compliant products to market late this year. Also, much in evidence was a new form of cryptography called el-

'net security, page 50

Charles Schwab won't implement SET 1.0 until all the kinks are out, Ed Ehrgott says

THOMAS W. BROENIC

Groupware gives lift to Reebok site

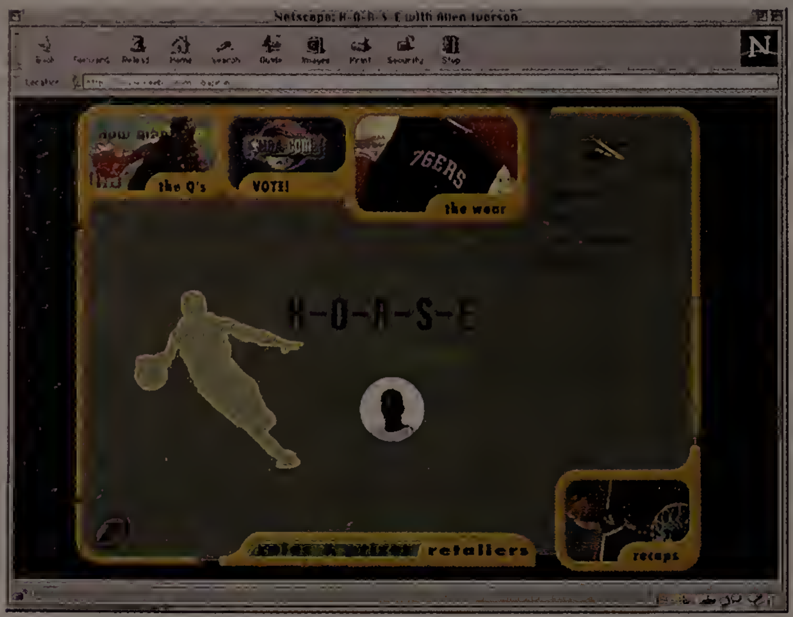
By Barb Cole-Gomolski

REEBOK INTERNATIONAL LTD. has turned to collaboration software to transform its World Wide Web site into an interactive experience and keep its customers coming back. Along the way, it has reduced the hassles involved in updating the ever-changing contents of the site.

The Stoughton, Mass.-based sneaker and sports apparel manufacturer recently redesigned Reebok.com using Radnet, Inc.'s WebShare, a Web-based groupware system. Reebok is using the built-in electronic-mail hooks, discussion groups, bulletin boards, and E-mail postcards to make the site far more interactive than when it debuted in 1994, according to Marvin Chow, Reebok's director of interactive marketing.

The goal was to create a Web

Groupware, page 50



Visitors to Reebok's site can get customized workout tips and news updates about sports they are interested in

Site gets interactive lift from groupware

CONTINUED FROM PAGE 49

site that fostered a community of users, Chow said. "If you just try and use the Web to sell them products, something is missing," he said. Reebok.com gets about 800,000 hits per day, and the company has signed up about 25,000 site members.

Reebok currently offers four microsites, each devoted to a particular fitness category, where customers can get profiles of athletes and training tips from coaches. But visitors who fill out a profile form in which they list their favorite sports will get customized workout tips, news updates about their sport and other information on future visits. Site members also can send E-mail postcards to their favorite athletes.

A Java-based sports ticker component that will let Reebok push game scores and sports stories to visitors is also in development.

"Delivering customized content via Web sites is still pretty rare but extremely valuable to companies like Reebok that sell to a mass market," said Mark Cecere, an analyst at Giga Information Group in Cambridge, Mass. It is particularly key for Reebok, "which is probably marketing to a younger audience that is looking for a fair amount of glitz," Cecere said.

Though Chow envisions customers chatting online with the large stable of athletes who have endorsed Reebok's products, built-in groupware isn't the primary reason WebShare got the nod.

Instead, it was the capability for Reebok employees to update the contents of a Web page — for example, modifying the address of a distributor or adding a recent interview with a sports figure — using a Web browser. And the workflow features in WebShare help Reebok manage the contents of its site, explained Jim Burke, president of Mindseye Technology, Inc., the Boston-based consultancy that designed the site. Reebok's marketers can update information and pass those changes to the appropriate people automatically using a workflow engine. Previously, updates to the site had to be coordinated through Reebok's Internet service provider.

The kind of do-it-yourself updating that Reebok now enjoys is one of the main advantages of using a Web-based collaboration platform such as WebShare or Lotus Development Corp.'s Domino as the basis of a Web site, Burke said.

WebShare better fit Reebok's needs than Domino because Reebok wanted to integrate its site with existing databases, which house information on products and retail outlets. WebShare works in conjunction with an SQL database, whereas Domino uses it own proprietary object store.

Scalability was also an area where WebShare seemed better suited. Using WebShare, Reebok was able to distribute its load across 16 Sybase, Inc. SQL Server databases without having to use a gateway that would have been required with Domino, Burke said. □

Tripod site draws Gen-X hits

CONTINUED FROM PAGE 49

people about everything from money to relationships, Tripod soon posted tools for visitors to create their own pages on the site. The explosive growth of personal Web pages has been the single biggest surprise at Tripod, company officials said.

"I don't know if at that time we understood the magnitude of what we were doing," acknowledged Margaret Gould-Stewart, company producer and creative director. "At that time, personal publishing was even before its infancy."

Tripod executives credit their site's popularity to its fulfillment of the twin Web mantra of creating virtual communities and offering personalized experiences.

FLIPPING FOR FLIPPANCY

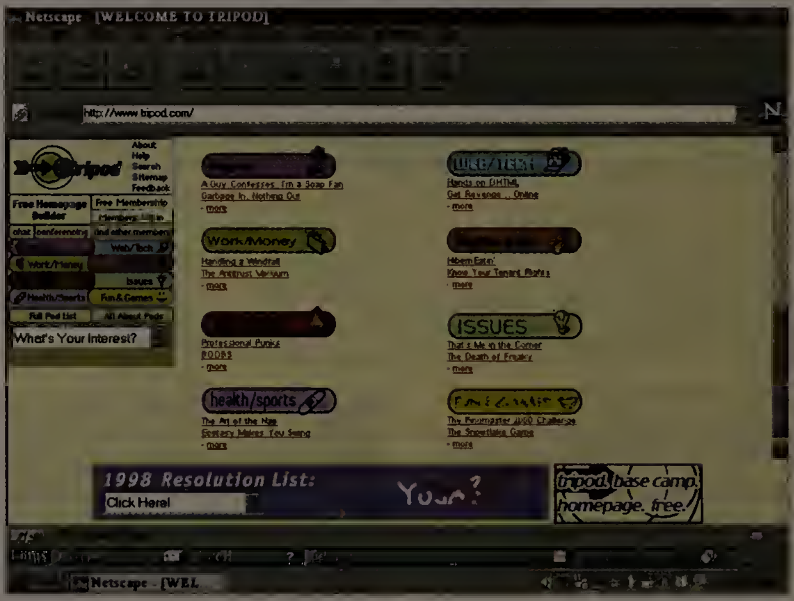
Tripod.com has a breezy, flippant tone befitting its core Generation-X audience. (It's hard to imagine CNN's site editor posting a letter like the recent missive from Tripod editor Emma Jane Taylor that begins, "I have a confession. At the grand old age of 24, I have succumbed to a girly crush on a movie star.")

Surfers at Tripod are encouraged to become involved with quick surveys such as "Do you have a personal space bubble?" (Possible answers: "Of course I do!" or "Excuse me?"), chats, message threads and member pages. Templates were designed to make it easy to post everything from a complete site to, say, favorite recipes.

"We're trying to to make it easy for people to interact with the site on a number of different levels," said Don Zereski, vice president of technology.

Tripod has 33 interest areas, called pods, on subjects such as work, home life, health and women's issues. Tripod visitors can register for free membership, allowing them 2M bytes of server space for a Web page.

The Tripod audience is one typically lusted after by many mainstream advertisers: young people in their brand-loyalty formative years. The company said it has signed up a stable of



Tripod.com has 33 interest areas, or "pods"

blue-chip advertisers, including Chrysler Corp., Ford Motor Co., Columbia Tristar and Fidelity Brokerage Services, Inc.

And Tripod collects revenue from users who sign up for "premium memberships," which offer 12M bytes of server storage, a personal chat channel and electronic-mail forwarding, among other features, for $3 per month. Company officials expect electronic commerce to become increasingly important as Tripod looks to offer some Web vendors a crack at its tantalizing Gen-X crowd. Zereski said the site expects to be profitable by the end of this year, although he wouldn't estimate revenue.

Several other major Internet players are eyeing the home page hosting arena, and Tripod is likely to face more competition down the road.

"We've heard that a number of folks are moving into that area," Zereski said. "But we're far more than a repository of home pages. . . . People will want to come back because they've left a piece of themselves at the site." □

'net security

CONTINUED FROM PAGE 49

liptical curve, which will let businesses encrypt data on small, storage-constrained consumer devices such as cellular phones and handheld devices.

Today, most organizations that do business electronically use the Secure Socket Layer (SSL) protocol to scramble their Web-based data transactions while the data is being transferred. But SSL can't encrypt the actual data once it arrives at its destination. "SET 1.0 will give us and our customers a higher degree of encryption at the application level by safeguarding account numbers and credit transactions from potential hackers," said Ed Ehrgott, director of internal audit at Charles Schwab & Co.

The San Francisco-based discount brokerage has more than 11,000 internal users. It handles more than $400 billion in assets from 4 million active customer accounts worldwide. "We will wait, though, to make sure all the kinks are out before we implement it," Ehrgott said.

ALL IN ONE PLACE

William Sztabnik, a vice president and director at Citicorp International Communications, Inc.'s global security resource center, said the conference, sponsored by RSA Data Security, Inc., is a good place to monitor trends and next-generation security devices. "This is the one time all year that I get to see all my vendors at the same time and argue the merits of the various technologies and standards initiatives," he said.

Citicorp's biggest security challenge is finding and deploying encryption products that will work with its diverse applications, operating systems and hardware. "There is no such animal right now, and that makes life tough for myself and my administrators. We expend a lot of time and energy just to come up with some that works OK but isn't necessarily bulletproof," Sztabnik said.

David Ferris, president of Ferris Research, Inc. in San Francisco, said, "Less than 5% of Fortune 100 users are investing in encryption technology for Web-based transactions right now or are even implementing test networks. Everyone's playing a wait-and-see game because Java technology is still too young and raw to handle most applications, and there's not a lot of cryptography solutions being sold yet." □

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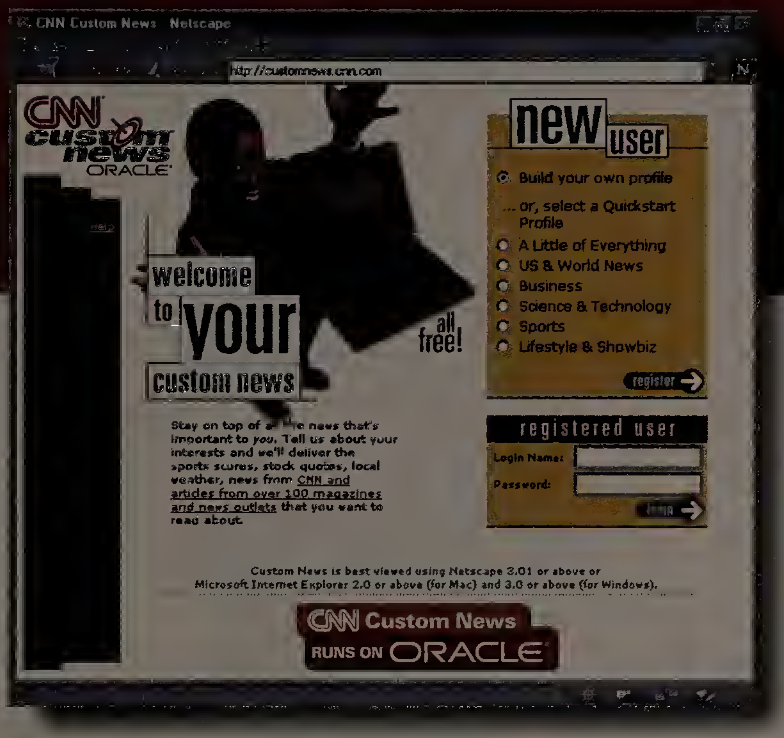

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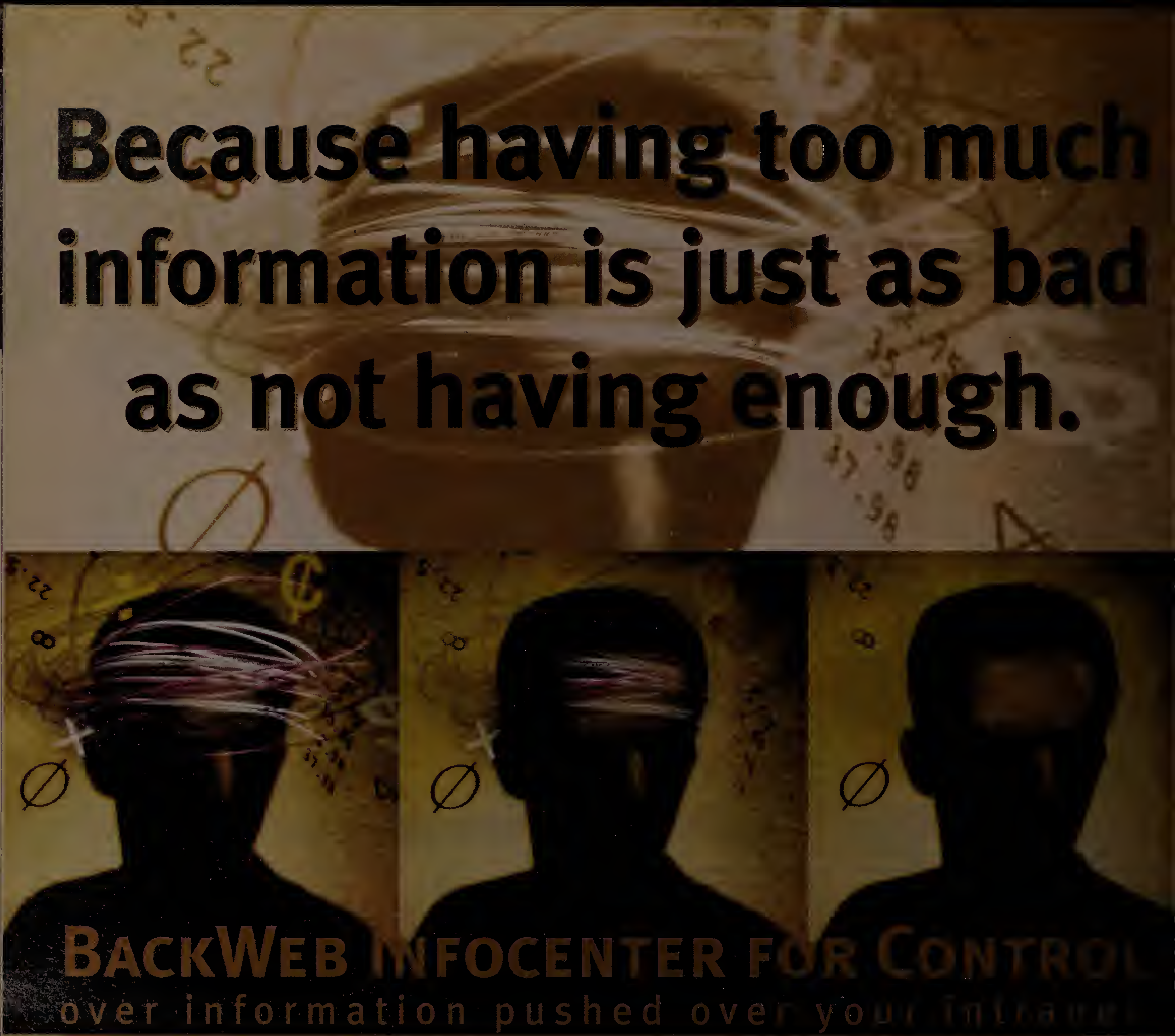
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Briefs

Fax for Exchange

Optus Software, Inc., in Somerset, N.J., later this quarter will ship Version 1.2 of its FacSys Fax Connector fax server for Microsoft Corp.'s Exchange Server. The upgrade lets users call in and check the number of faxes received. After they listen to fax header information, users can forward a fax to another fax number or electronic-mail address. The same procedure may be applied to an E-mail message. Pricing for the fax server is $49.95.

NetWare antivirus

Symantec Corp. in Cupertino, Calif., recently introduced Norton AntiVirus for NetWare 4.0, which gives businesses more advanced virus repair and detection capabilities.

It uses the Bloodhound-Macro technology to identify and eliminate macro viruses. It also uses Symantec's Striker technology to detect and delete polymorphic viruses. Norton AntiVirus for NetWare 4.0 is available now. It costs $499 for one server and 10 clients. A free 30-day trial version is available at Symantec's World Wide Web site (*www.symantec.com/trial/ware/index.html*).

Test tool for Win 95

Frontline Test Equipment, Inc., in Charlottesville, Va., recently released Serialtest Async for Windows 95, a testing package that will let any PC work as a full-featured serial data and protocol analyzer. The product is shipping now and costs $395. That pricing includes the cable set and software.

SLA ON THE WAY

61% of network managers expect to establish service-level agreements (SLA) by June 1999 to track usage and uptime of servers and networks for corporate management.

ase: 100 U.S. organizations with 500 or more nodes

urce: Infonetics Research, Inc., San Jose, Calif.

Overseas nets pose challenges

By Bob Wallace

SETTING UP an office overseas is one thing. Setting up a network overseas is another.

Seasoned information systems managers warn that trying to set up local networks to support a new business overseas means problems finding qualified resellers and a shortage of skilled staff.

Addressing those challenges will mean more work for IS managers, often heavy international travel and even possible relocation to support a corporate move into foreign markets.

"Where international branch offices provided a terminal for a mainframe connection [to the U.S.] in the past, they're just now starting to support the same network applications as we are and require the same set of [local] network tools and technologies," said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy. "As international business becomes more important, IS managers are being forced to confront this problem."

SETH AFFUMADO

"Users should look for a global VAR based in the U.S. that has . . . enough skilled support staff in the countries in which you want to set up shop."

–ROBERT MCKENNA
SUMITOMO BANK

The toughest part of bringing these offices up to speed is selecting the right value-added reseller (VAR), users said. That's important because most U.S.-based LAN vendors don't deal direct overseas.

"Users should look for a global VAR based in the U.S. that has solid network design experience and enough skilled support staff in the countries in which you want to set up shop," said Robert McKenna, vice president of global network engineering at Sumitomo Bank Capital Markets, Inc., in New York. "Once you start dealing with individual local VARs overseas, things can get difficult to coordinate."

Checking out track records is the key to picking the right VAR, said Chuck Rush, global

Overseas nets, page 57

Cleaning up LANs for year 2000

▶ *Systems management app helps agency prepare*

By Patrick Dryden

ONE AGENCY in the state of Washington already has identified which of its PCs and LAN applications will choke in 2000.

Now the tough part is removing them.

Information systems planners in the private sector typically assume that the natural replacement process will assure year 2000 compliance for all distributed hardware and software before the new millennium.

For example, Phoenix-based U-Haul International, Inc. expects to turn over most of its desktop PCs, said Mark McCardle, supervisor of PC support. "We have about a hundred 286/386 machines still in the office here, but the goal is to just get rid of them," he said.

But PCs and LAN-based programs never really leave the 3,000-user state Department of

Cleaning up, page 57

MCI dominates local service

By Matt Hamblen

DESPITE AT&T CORP.'s planned merger with local carrier Teleport Communications Group, analysts and users said MCI Communications Corp. is far out front in the race among long-distance carriers to add local service.

MCI now has local voice and data service to businesses in 31 metropolitan U.S. markets, giving customers the ability to hire MCI for both long distance and local service. AT&T offers limited local service.

"We've started to migrate to all local business with MCI in those areas where we aren't happy with local service from the Bell operating companies. MCI gives us one-point service [for long distance and local] and good pricing," said Mike McLeod, vice president of operations at Sonitrol Management Corp., in Westlake, Texas, which operates and franchises electronic security services for 100,000 businesses.

By adding MCI local service, users may get:

- Integrated billing for local markets with long-distance service
- Management reports of calling patterns
- Alternative to regional Bell provider

SERVICE ISSUES.

McLeod said he received good service and pricing from Bell South in Atlanta and Southwestern Bell, part of SBC Communications, Inc. in San Antonio. But he was relieved to cancel his local service from US West, Inc. in Denver and Pacific Bell, which is also part of SBC.

MCI, page 57

Cisco gives its switches a bit more sensitivity

By Bob Wallace

NETWORKING GIANT Cisco Systems, Inc. last week announced a family of flexible switches that will let IS managers automatically accommodate increases in bandwidth requirements by end users.

The Catalyst 2900 XL desktop switches can provide 10M or 100M bit/sec. bandwidth from each port. The switch automatically "senses" when a desktop needs more capacity and switches to the higher speed.

That gives information systems managers an alternative to replacing 10M bit/sec. systems with higher-speed switches when end users outgrow their 10M bit/sec. connections. Bay Networks, Inc. and 3Com Corp. offer similar systems.

The cost difference between 10M/100M bit/sec. switches and 100M bit/sec.-only switches is negligible, according to The Dell'Oro Group, a Portola Valley, Calif., research firm.

NO DRAIN

"With autosensing switches, there's no requirement for management reconfiguration," said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consulting and research firm. "That means there's no drain on network support personnel."

Autosensing, page 57

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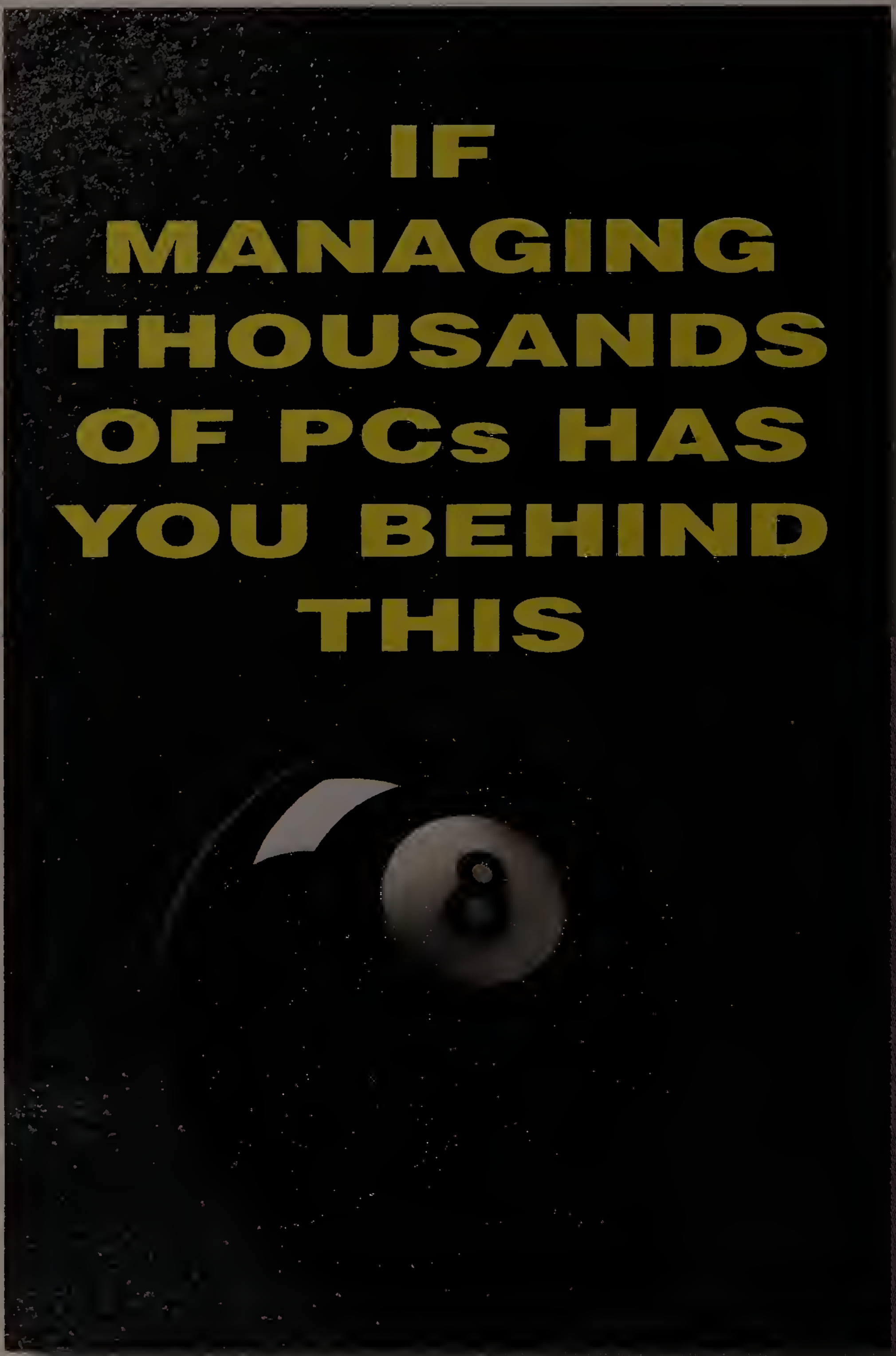
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Overseas nets pose challenges

CONTINUED FROM PAGE 53

network architect at McDonald's Corp., in Oakbrook Terrace, Ill. "We've found that the level of VAR training varies widely, as many VARs are new and untrained," Rush said.

The fast-food giant operates in more than 100 countries, including Eastern Europe and Russia.

VARs that are LAN equipment experts are hard to find, he said. That's largely why, two weeks ago, Rush moved his family to London for a two-year stint.

"I was spending all my time in Europe," Rush said. "I'd be over there for five or six weeks straight and then back home for one week. It was becoming a strain, and relocating made more sense."

McKenna reached the same conclusion several years ago, moving to Hong Kong for two months to help alleviate a skills shortage before Sumitomo opened an office there.

"We didn't see it in London, but in Asia we found a serious shortage of experienced design and engineering workers," McKenna. "As a result, our crew took on those tasks, which tied up a good amount of resources."

Polaroid Corp. has turned to employees in its small international office to help address the problem.

"We try to get a 'power user' at the site to take on responsibility for ongoing network support," explained George Deyett, telecommunications operations manager for the Waltham, Mass.-based camera and film producer. "We simplify our network design to help keep things simple for the person."

The firm ships equipment that supports remote diagnostics so Polaroid's staff here can troubleshoot and isolate problems, leaving the power user to just fix them, Deyett said. He said the success of the strategy varies by site. "These power users already have regular jobs, so there can [still] be resource constraints," Deyett said.

Polaroid has small offices in Italy, Switzerland, Belgium, Austria, France, Germany and Australia. The firm has on-site support staff in its larger international manufacturing facilities, Deyett said. □

MCI dominates local service

CONTINUED FROM PAGE 53

"Some [regional Bell operating companies] are good, and some are miserable," he added.

Syncor International Corp. in Woodland Hills, Calif., recently picked MCI for local service over Pacific Bell when it decided to move its corporate headquarters. MCI offered Syncor use of the same telephone numbers from its old headquarters, while Pacific Bell wouldn't.

MCI also provides management reports on local service as well as long distance, identifying the company's heavy calling periods so it can adjust customer-service staffing levels as needed.

"The RBOCs are now going to have to show a higher service level" to continue to compete locally, said Jay Saporta, communications manager at Syncor.

Analysts said MCI clearly is out front in local service to business. "MCI has by far gotten the earliest start and has invested the most with fiber-optic cable and switches in 31 cities," said Rob Rich, an analyst at The Yankee Group in Boston.

THE PAYOFF

Jeffrey Kagan, an analyst at Kagan Telecom Associates in Atlanta, agreed that MCI is dominant. But MCI has made a heavy financial investment in building infrastructure that hasn't yet adequately paid off in increased revenue, although it probably will, he said.

AT&T's recent announcement that it will merge with Teleport Communications in Staten Island, N.Y., in an $11 billion stock deal shows a strong surge by AT&T to develop the local market for business users, Kagan said.

But MCI, which plans to merge with WorldCom, Inc. in Jackson, Miss., will be able to reach more business customers than AT&T/Teleport, Kagan said. MCI/WorldCom will have a presence in 90 local markets, and AT&T will be in about 66 markets, he said.

"MCI is way out in the lead but could be slugging it out with AT&T in two years" as AT&T grows and adds markets for local business services, Kagan said.

The third-largest long-distance provider, Sprint Corp. in Kansas City, Mo., hasn't yet entered the competition for local service that is bundled with its long-distance offering.

Competition at the local level is a priority for network managers, Kagan and Rich said. Business users frequently say they dislike having only one choice of carrier in most markets.

Nationwide, only 3% of the $100 billion local market is held by companies other than the regional Bell operating companies, Rich said. □

Autosensing switches due

CONTINUED FROM PAGE 53

Support staff today get tied up with mundane tasks such as reconfigurations and "are often never able to sit back and look at network trends and strategic issues," Nolle said.

"That's why so many users stumble into problems with their networks," he explained.

The Cisco switch family comprises four models.

The eight-port Catalyst 2908 XL costs $2,295, which is $297 per port.

The 16-port Catalyst 2916M costs $3,995, which is $250 per port. Both are available now.

In March, Cisco will ship the 24-port Catalyst 2924 at $3,995, which is $166 per port, and the 24-port Catalyst 2924C at $4,995, which is $208 per port.

All the models can be equipped with two expansion modules. The Catalyst 2900 XL switches can forward 3 million packet/sec. and use 1.6G bit/sec. of bandwidth. They can be managed using a World Wide Web-based interface. □

PREPARING PCs AND LANs FOR 2000

Some client-side tips from the Department of Labor and Industries, Washington state:

Start soon – Fixing or moving PCs and replacing programs may take longer than you think

Test everything – Screen all hardware, software and user procedures, and don't accept vendor claims

Get asset tools – Hardware inventory and software metering are good for more than year 2000 projects

Cleaning up LANs for year 2000

CONTINUED FROM PAGE 53

Labor and Industries in Olympia, Wash., which handles worker compensation and safety issues.

Date problems that crop up here might affect claims payments, for example — even though the agency will have fixed year 2000 processing in its mainframe applications.

"As a state agency, we don't throw away anything," said Gordon Swarthout, technology asset manager at the agency.

Fewer than one-fifth of IS groups have completely inventoried their PCs and software, said Chris Germann, an asset management analyst at Gartner Group, Inc. in Stamford, Conn.

"Most are testing each PC BIOS for date turnover but [aren't] checking spreadsheets and other software," Germann said. "The problem sounds simple on the desktop, but it's not."

> **"Seemingly small, inconsequential programs like macros spread from one to a few to hundreds of users, until the agency and public come to rely on them."**
> **– Gordon Swarthout**
> **Washington state**

Using inventory tools and lab tests, the Washington agency found 400 PCs and 14 homegrown or off-the-shelf programs that could jeopardize daily operations, Swarthout said.

Identifying noncompliant PCs was easy, because the agency had current inventory data. A state-mandated capital asset management system tracks the vendor, price and location of each system. But that tool didn't supply the details needed to ferret out noncompliant systems. NetCensus software from Tally Systems Corp. in Hanover, N.H., tracks specific configuration information such as the type of processor and support chips. After lab tests identified noncompliant configurations, NetCensus spotted them in its database. A simple upgrade to BIOS chips can fix 120 of these PCs, Swarthout said, but modifying the rest will be too costly. So, labels and warning flags in NetCensus will have to steer those systems away from interacting with critical applications.

Software was tougher to find and fix.

"Seemingly small, inconsequential programs like macros spread from one to a few to hundreds of users, until the agency and public come to rely on them," Swarthout said.

Another Tally Systems tool, Centameter, quickly reported which software users run so the lab would know what to test. But testing required about 300 hours in the agency's lab, Swarthout said. And it would have taken longer without help from other state agencies, he added. Each tested some common packages and shared the results.

But testing may not be the hardest part. Replacing familiar software may take until the end of the millennium.

Back when the agency migrated users from DOS to Windows, many endured a "painful process" that took two years before every database process, word processor form and spreadsheet macro was changed, Swarthout said. □

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Briefs

Help for Baan projects

New York-based KPMG Peat Marwick LLP has launched a consulting practice for food and beverage companies that implement The Baan Co.'s enterprise resource planning software. The practice, aimed at quick implementation, will include reference models designed specifically for the industry so users can configure software and change their business processes.

Object databases

Versant Object Technology Corp. in Fremont, Calif., this week will detail plans to bundle its object database with NetDynamics, Inc.'s Internet application server and Rational Software Corp.'s component-based modeling software. The VersantAce package was designed for use in building Java-based applications. Pricing for 10 users starts at $55,000. The product is due to ship late this quarter. Versant also is integrating its database with messaging software from Tibco Software, Inc., but it won't sell that product.

XML publishing

Electronic-commerce software firm Open Market, Inc. plans to incorporate the Extensible Markup Language (XML) in its Folio products. The Cambridge, Mass., company said XML can help deliver "more compelling electronic publishing" by enabling rich searches and compound document support on the World Wide Web. The World Wide Web Consortium has backed XML as a Web standard.

Y2K Cobol tool

NeoMedia Technologies has announced an upgrade to its cross-platform Cobol year 2000 tool set. Adapt/2000, Release 3.0, was designed to provide automated source code conversion to implement IBM's newly announced millennium language extensions for Cobol. Adapt/2000 will ship next quarter. Pricing starts at $20,000 for NT versions and $30,000 for Unix.

MAN VS. MACHINE

Manual deployment can save minutes on the first desktop

	Manual	*Automated*	
		*First**	*Second***
Microsoft Office 95	8:25	53:12	13:54
Norton Anti-Virus	10:02	15:05	3:00
WinZip 6.2	1:02	9:21	1:15

* Automated times include time for building installation-and-removal package on the server

**Installing only the client-side application

Auto deployment can save money on subsequent installations

*Desktop software deployment costs (per 1,000 nodes)**

Number of times software is deployed	*Manual*	*Automated*
1	$9,370	$50,039
3	$28,110	$50,117
5	$46,850	$50,195
7	$65,590	$50,273
9	$84,330	$50,351

*Assumes staff costs of $25/hour ($52,066 average annual salary for a 40-hour week)

Source: *Federal Computer Week* Test Center, Falls Church, Va.

Auto-install saves only in volume

By Gordon Mah Ung

COMPARING COSTS

HOW MUCH return on investment (ROI) can you expect using automatic software installation instead of sending a platoon of technicians armed with CDs and floppies to every corner of your company?

A new study found that large companies with tens of thousands of PCs benefit most quickly from automatic software distribution. Companies with 1,000 network nodes would have to go through five software deployment cycles before they could recover the costs of their investment, according to the study by *Federal Computer Week* magazine.

Users agreed that automatic software distribution saves dollars but disagreed on how fast the ROI comes around.

"We've automated the install, and it's saving us tons," said Dan Brunner, a systems programmer network engineer at Western Washington University in Bellingham, Wash.

"Previously, we would have a staff of people go out to everybody's desks. Now we call them

Auto install, page 62

Microsoft, Sybase move to fill gap

By Craig Stedman

MICROSOFT CORP. and Sybase, Inc. don't develop databases together anymore. But both are moving at the same time to correct a shortcoming that limits their support for packaged applications.

Each company is beta-testing a database upgrade that adds row-level data locking, a key technology that users need to take full advantage of applica-

Microsoft, Sybase, page 62

NOT-SO-HIGH AVAILABILITY

The status of key packaged applications for Microsoft and Sybase databases

Microsoft	Sybase
• SAP, Baan and PeopleSoft all support SQL Server 6.5	• SAP doesn't support Sybase databases
• But performance will be better with row-level locking, Microsoft says	• Baan has only a controlled release at this point
	• PeopleSoft supports Sybase, but speed is limited for now

Agency combines databases to revamp vital forecasts

By Sharon Gaudin

CUTTING ONE-THIRD of the staff at the U.S. Department of Energy (DOE) not only escalated the workload but also focused a glaring light on how often users were getting bad information from database queries.

Scott Applonie, information manager at the DOE in Idaho Falls, Idaho, said the problem of getting inaccurate and inconsistent information from database queries has plagued the federal agency for years.

Maintaining high-quality queries is an important consideration for any business, but the stakes for the DOE are high. Faulty reports on government laboratories, nuclear facilities and cleanup projects, for example, could result in fines from state and federal regulators. The department also must provide regular budget forecasts that can change with the prevailing political winds in Congress. Mistakes there could mean a loss of funding.

The agency's situation became more visible in the Clinton administration's effort to cut administrative costs across the federal government, Applonie said. The policy slashed the number of the DOE's outside contractors from five to one in 1996 and cut the agency's

DOE database, page 62

REVIEW▶

New Norton Win 95 utility almost gold

By Howard Millman

VERSION 3.0 of Symantec Corp.'s venerable utility collection, Norton Utilities for Windows 95, adds several performance-enhancing and preventive maintenance modules. A new interface, Systems Integrator, significantly simplifies the use of the program's many features. But Symantec could have made this a truly first-rate tool collection by including features once bundled in to its earlier products.

Version 3.0 offers 15 tools to monitor nearly 100 key system conditions and processes. Chief among those new tools is WinDoctor. A worthy update of the Norton Disk Doctor, WinDoctor valiantly tries to compensate for Windows 95's weaknesses, and it partially succeeds. WinDoctor finds and fixes a host of registry problems, including missing Dynamic Link Libraries, registry errors and incorrect application paths. Run weekly, this Wizard

Norton utility, page 63

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Auto-install savings

CONTINUED FROM PAGE 59

on the phone and say, 'Click here,'" Brunner said.

Like most users, Brunner said he can't put his finger on the exact amount of money his organization saved.

With the university in the middle of a Microsoft Corp. Office 97 rollout, Brunner said he believes the deployment to 4,000 desktops for administrators and staff spread across the 50-building campus will take two months instead of six months over a manual installation.

Washington University uses a combination of Novell, Inc.'s Application Launcher and administrative tools from Microsoft to automate the process.

"I think you break even on two using [Application Launcher]," Brunner said. "What it's done for us is not having to hire that many people. With the same amount of staff, we've been able to respond to the users' needs quicker."

TEST RESULTS

The *Federal Computer Week* study measured the time it took to install four popular applications and how much time a technician would have to spend baby-sitting each deployment.

The test then measured the cost to build installation and removal templates under Intel Corp.'s LANDesk. Manual installations beat automated installs by more than an hour. And a single automated installation cost $89.02, far more than the $9.37 cost of a manual install. A large portion of the cost the study estimated was the $50-per-seat license of LANDesk for 1,000 seats.

But the cost of LANDesk also includes antivirus, remote control and asset management, said Mark Maguire, director of information technology at Domino's Pizza, Inc. in Ann Arbor, Mich. That makes it a bargain.

Maguire said the fast-food company hasn't used LANDesk to do a full-scale deployment, but technicians use it to troubleshoot remotely and to install new applications.

> **The LANDesk seat charge is expensive but is "obviously the smarter way to go."**
>
> **– Mark Bos**
> **Baptist Health Care**

"Look at the money you save just in not flying somebody out there," Maguire said of a remote office site. "You'll burn that up in just an hour of consulting time."

Mark Bos, a user support analyst at Baptist Health Care in Louisville, Ky., said he believes that the $50-per-seat cost of LANDesk is high but worth the expense. Baptist uses homegrown applications to distribute software to 3,500 desktops.

"Whether it's a homegrown tool or 50 bucks for a client, it's obviously the smarter way to go," Bos said. ☐

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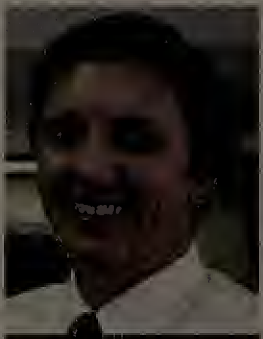
DOE revamps database

CONTINUED FROM PAGE 59

workforce from 12,000 to 8,000, he said.

"Going down to one contractor meant that Lockheed Martin saw the entire issue. When they pulled information together from different databases, they couldn't correlate it," Applonie said.

The DOE sought to organize its database streams using analysis tools from Gentia Software, Inc. in London. "With the number of organizations we have to watch over and the number of people reporting information in to us and the amount of information we had going out, we were facing quite a mess," said David Brown, a staff engineer at Lockheed Martin Idaho Technology Co. The company, in Idaho Falls, Idaho, is the DOE's prime contractor.



The DOE's Scott Applonie:

Inaccurate and inconsistent queries plagued the agency for years

The agency adopted Gentia's application development environment, which culls information from databases that run on IBM mainframes, Unix servers and Sun Solaris. It then loads the information on one server — in this case, a Hewlett-Packard Co. server.

The various categories of information — from financials to accident reports to human resources -- also are calculated in Gentia's multidimensional database.

The system gives the agency one key application to consult for answers, Applonie said. The DOE plans to tie more users in to the system later this year — more than double the 120 staffers who now have access.

Brian Murphy, an analyst at Yankee Research Group in Boston, said Gentia is a little ahead of its competitors such as Arbor Software Corp. in Sunnyvale, Calif., in terms of taking multiple databases and culling information into "cubes" of similar information that can be stored on a separate server.

But Murphy added that Gentia doesn't make for real-time solutions because any queries are being done against a secondary database, not the up-to-the-minute main database. "And it's not as simple as loading a database," Murphy said. "It might take 24 hours to load up, and that's a problem if you want the latest and greatest information."

Brown said that hasn't been a problem for the DOE. The agency is using Gentia to uncover longer-term data trends, he said. ☐

Microsoft, Sybase

CONTINUED FROM PAGE 59

tions such as SAP AG's R/3.

Sybase plans to ship its Adaptive Server Enterprise 11.9 database this quarter, although the software initially will go only to application vendors for certification purposes. Meanwhile, Microsoft sent out a second test version of its SQL Server 7.0 this month and is promising commercial shipments later this year.

Row-level locking closes off smaller blocks of data when users update records than the page-level locking schemes Sybase and Microsoft use now. That should mean quicker performance, especially on packaged applications written with row-level locking in mind.

Blue Cross/Blue Shield of Alabama is one Sybase customer that is feeling some pain because of the current lack of row-level locking support.

The Birmingham-based insurer runs PeopleSoft, Inc.'s human resources applications on Sybase. But Darrell Bilbrey, the company's information systems manager for human resources, said he can't run multiple payroll jobs at the same time because database throughput gets bogged down.

That sometimes forces Blue Cross/Blue Shield to do payroll processing during business hours, and that can lock data away from users who need to access records or run queries, Bilbrey said. "Row-level locking should ease that up for us a bit," he said, adding that he is hoping for a tenfold performance boost based on general benchmarking by Sybase and PeopleSoft.

The one drawback is that row-level locking may require Blue Cross/Blue Shield to upgrade its Unix server with faster processors and more memory. But Bilbrey said the speed-up should be worth the added hardware cost.

Anthony Bradley, an analyst at Meta Group, Inc. in Stamford, Conn., said row-level locking has become a necessity for Microsoft and Sybase because of the growing strategic importance of packaged applications to database buyers [CW, Jan. 5].

"They've been waiting until the last possible minute, and it's basically arrived," Bradley said. For example, he added, Sybase has to get by now with only "insignificant" sales involving packaged software (see chart, page 59).

Microsoft user James Xu, vice president of technology at Aristotle Publishing, Inc. in Washington, said he has seen "almost unimaginable" speed gains while beta-testing SQL Server 7.0 on his 75G-byte voter information database.

"They've rewritten the whole engine from the ground up, and row-level locking is a big thing for boosting performance," Xu said. ☐

New Norton utility

CONTINUED FROM PAGE 59

can optimize performance and even reduce Window 95's delinquent behavior.

A related module, System Doctor, is the software equivalent of a cardiac monitor. It tracks a system's critical processes, sounds an alarm and suggests fixes when it detects such events as low memory, low disk space or outdated virus definitions. Symantec also bundles into Version 3.0 a feature-limited version of its antivirus program

Other new features include a centralized interface, a registry compaction facility and a file sweeper that purges hard drives of unwanted or old files.

New features can help you recover from system crashes or freeze-ups, including the option to boot directly to Windows rather than DOS when recovering a system. A new module, CrashGuard, tries to intercept Windows' Invalid Page Faults, Access Violations and General Protection Fault messages and offers you the opportunity to close the offending application, save your work or try to repair the fault. The new Anti-Freeze adds a button to the Ctrl-Alt-Task Box to unlock applications.

My IBM PC-750 made a perfect test bed for evaluating crash guard modules. Having had dozens of review applications temporarily installed on it, Windows 95 crashed three or more times per day for no apparent reason. Norton's recovery duo let me gracefully extricate myself from three out of four of those irritating and time-wasting ordeals. That ratio approximately correlates to the recovery performance of Bomb Shelter, a module included in Helix Software's Nuts and Bolts utility collection.

Other improvements in Version 3.0 include an updated SpeedDisk defragmenter/optimizer. The first time I ran it, I directed it to reposition files by moving the files accessed most frequently to the outer disk tracks. After the reorganization, Windows 95 loaded several seconds faster. Another new module, SpeedStart, boosted the loading speed of often-used programs by preloading segments of applications.

Symantec unfortunately excluded helpful features that it had offered in its earlier products. Notably absent from Version 3.0 is the ability to zip/unzip files, open electronic-mail messages encoded in Multipurpose Internet Mail Extension, BinHex and UUencode and the secure erase feature that overwrites deleted files.

Even in light of such omissions, Version 3.0's many new features and improvements can help you achieve a reasonably trouble-free PC — assuming such an entity can exist. ☐

Millman operates Data System Service Group LLC, a consultancy in Croton, N.Y. He can be reached at (914) 271-6883 or hmillman@ibm.net.

PRODUCT REVIEW

▸ *Norton Utilities for Windows 95 3.0*

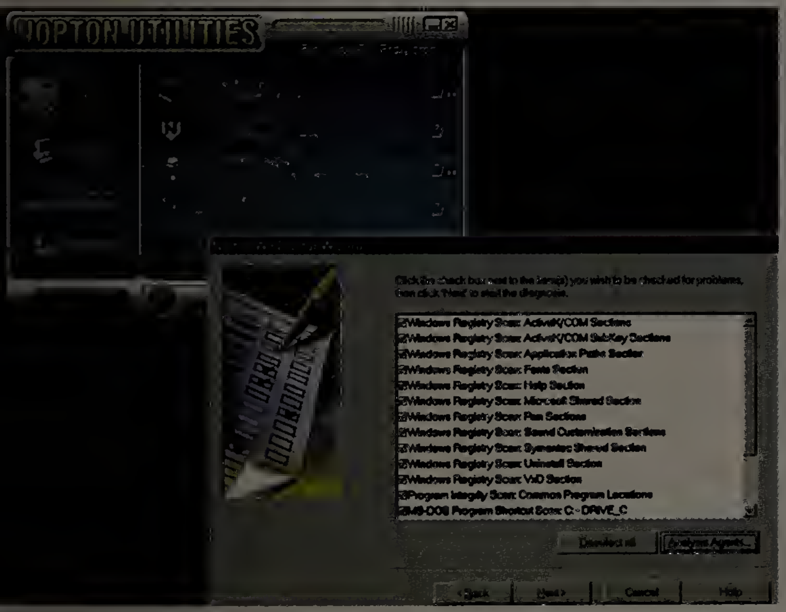
OVERALL B GRADE

Symantec Corp.
Cupertino, Calif.
www.symantec.com

Price: $79.95

Pros: New interface simplifies using the program's many tools

Cons: Doesn't include some features from earlier versions



Click the check box next to the item(s) you wish to be checked for problems, then click 'Next' to start the diagnosis.

- ☑ Windows Registry Scan: ActiveX/COM Sections
- ☑ Windows Registry Scan: ActiveX/COM SubKey Sections
- ☑ Windows Registry Scan: Application Paths Section
- ☑ Windows Registry Scan: Fonts Section
- ☑ Windows Registry Scan: Help Section
- ☑ Windows Registry Scan: Microsoft Shared Section
- ☑ Windows Registry Scan: Run Sections
- ☑ Windows Registry Scan: Sound Customization Sections
- ☑ Windows Registry Scan: Symantec Shared Section
- ☑ Windows Registry Scan: Uninstall Section
- ☑ Windows Registry Scan: VxD Section
- ☑ Program Integrity Scan: Common Program Locations
- ☑ MS-DOS Program Shortcut Scan: C:-DRIVE_C

Norton's new integrator separates the tools into four primary functions

NEW PRODUCT

QUARTERDECK CORP. has announced Realhelp Extra Strength, a utility for Windows 95 that detects problems that lead to system crashes and application freezes.

According to the Marina Del Rey, Calif., company, the software monitors for 16- and 32-bit exception errors and stabilizes applications that are about to crash so users can save and exit work. It can detect hardware and software problems and offer solutions.

The utility costs $59.95.

Quarterdeck
(813) 523-9700
www.quarterdeck.com

Licensing changes cut costs of document management

By Barb Cole-Gomolski

SOME MAKERS of document management software are dropping their hefty per-seat price tags and moving to a more affordable licensing model.

The new pricing schemes — which resemble Microsoft Corp.'s — could make it more feasible to deploy document management across the enterprise.

The price reductions that have come from companies such as FileNet Corp. in Costa Mesa, Calif., and Eastman Software, Inc. in Billerica, Mass., are overdue, users said.

"It's hard to justify the expense of a document management system for an application that is used by a handful or a few dozen people," said Jim Azevedo, systems developer at Dreyer's Grand Ice Cream, Inc. in Union City, Calif. The ice cream maker uses a document management system from London-based Intranet Solutions, Inc. to track its recipes.

A few years ago, it was common to pay $1,000 or more per seat for client software that could handle document management and image processing, recalled Loretta Goralczyk, imaging manager at American Presidents Line Shipping Ltd. in Oakland, Calif. "We told the vendors they needed to make it much more affordable," she said.

Users may be charged several thousand dollars for a server with unlimited client access. Where per-seat pricing is available, the cost has come down to between $100 and $500 per client.

Connie Moore, an analyst at Giga Information Group in Cambridge, Mass., attributed the price shift to the growing popularity of low-cost document management systems designed to work with existing electronic-mail systems. Eastman Software and FileNet sell such products for Microsoft Exchange.

"These products may have 80% of the functionality [of traditional document management systems], but they are a lot cheaper," Moore said. "That puts a lot of pressure on the high-end document management vendors" to lower their prices. ☐

CUTTING PRICES

November

- Eastman Software moves from a per-seat model to a server and client access model

January

- FileNet rolls out new software bundle, which gives users basic document imaging and workflow features for less than $500 per user
- Feith Systems cuts prices on some of its document management systems by 45%

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[*] Only applicable to HP & Baan Certified Solutions. [†] Based on TPC-C results of the HP-UX 11.0 64-bit operating system environment on a single-node HP 9000 V2200 Enterprise Servers and Sybase Adaptive Server Enterprise 11.5 compared against other single-node systems as of 10/1/97, as well as Baan IV benchmark results of 6,504 users that demonstrate performance improvement of 21% over the previous Baan IV benchmark. ©1997 Baan Company. ©1997 Hewlett-Packard Company.

Servers & PCs

Large Systems ♦ Workstations ♦ Portable Computing

Briefs

Sun workstation prices

Sun Microsystems, Inc. in Mountain View, Calif., last week detailed pricing on its new Unix workstations and said it will let buyers order them online. In addition, Sun is preinstalling Netscape Communications Corp.'s Navigator browser on the machines.

The two workstation models in the Darwin line are the Ultra 5 workstation, with a 270-MHz UltraSPARC II processor, which will cost $2,995; and the higher-powered Ultra 10, with a 300-MHz processor. It will start at $6,395.

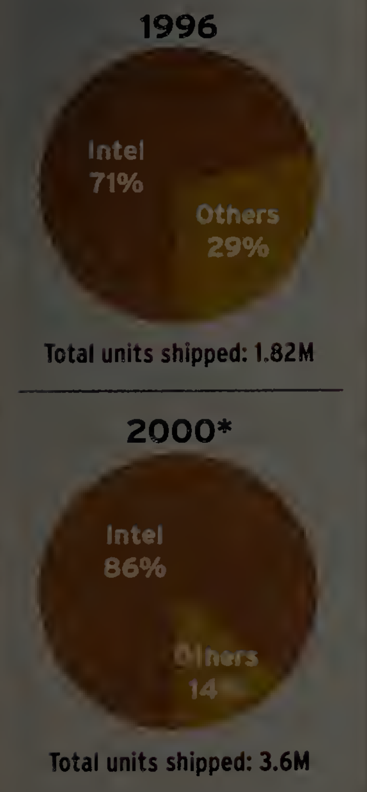
Mac OS desktop

Umax Corp., in Fremont, Calif., is offering a Mac OS-compatible computer with the Mac OS 8 operating system. The J710/200 has a 200-MHz 604E Power PC processor, 4M bytes of video memory and Matrox Mystique 220 video controller, a 604E-based motherboard and a 3G-byte hard drive.

The computer will ship next month. It will cost $1,595.

INTEL EVERYWHERE

What chips are in servers?



*Projected

Source: International Data Corp., Framingham, Mass.

Web tools open path to vital data

By Jaikumar Vijayan

MOST BUSINESS-CRITICAL enterprise data is usually hosted on mainframes or proprietary midrange computing environments.

It is the kind of data a company relies on to run its business. But it has also been the kind of information that is usually directly accessible to very few users and available on PCs and desktops only via relatively clunky host connectivity products.

Internet technologies are beginning to change a lot of that. Host-to-desktop connectivity vendors are using Internet, intranet, Java and World Wide Web browser technology to give users a range of products for easily accessing applications and data from multiple hosts. And new tools are giving users ways to spruce up drab character-based terminal emulators and organize the information on them with graphical user interfaces.

"I don't think any vendor can afford to ignore Web and browser technologies" for host connectivity purposes, said Mike Gentile, vice president of Zurich American Insurance Group, in Schaumberg, Ill. Gentile said such products "have a lot of appeal for customers, especially from an ease-of-use and deployment perspective."

At a basic level, the products link host systems to desktops via the Internet, intranets or extranets using Web browser tech-

Web tools, page 68

TAPPING ENTERPRISE DATA VIA THE WEB

Vendors are offering the following Web-to-host products:

- Web-enabled server products that let companies make legacy data and applications available via any browser-based client
- Web-enabled clients that provide direct browser-based access to host data
- Tools that let users customize screens and migrate applications to the Web
- Products for secure Web-to-host connectivity

CLIENT/SERVER

Users await networked client backup

By Nancy Dillon

STORAGE MANAGEMENT software is one tool that information systems departments can use to reduce the administrative costs associated with client/server-based systems, according to users and analysts.

But although there are lots of products available for server backup and restore, there are few options for networked client backup.

"We have about a half of a terabyte of storage on our network, and 20% of this is on Windows clients," said Michael Warchut, systems administrator in the data center of Interloc, Inc., a Greenfield, Mass., company that tracks out-of-print and antique books.

"I'd love to see a product for backing up clients across a network that's fast and isn't a bandwidth hog. We can't afford to give up full performance for very long," Warchut said. Interloc uses ARCserve for NT from Computer Associates International, Inc. to back up 30 servers.

Philip Mendoza, an analyst at

Client backup, page 68

Intel's Tillamook chip may be moot

▸ *Analysts: Most notebook users will wait for faster chip due this spring*

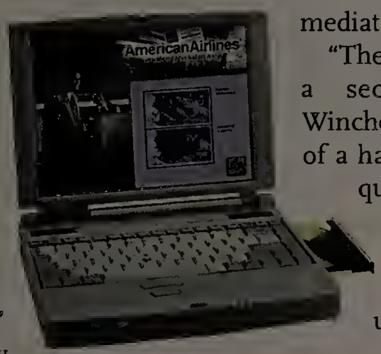
By Kim Girard

WHILE SOME companies will take advantage of newly announced faster notebooks based on Intel Corp.'s Tillamook processor, analysts said most will hold out for the higher-performing Deschutes processor, due this spring.

"[The 266-MHz processor] is a 'tweener," said Gerry Purdy, president of Mobile Insights, a Mountain View, Calif.-based consultancy. Shipping after the touted 233-MHz Tillamook chip and before Deschutes, the mobile version of the Pentium II, the Tillamook will have little chance to build momentum, he said.

Deschutes processors, which will start at 266 MHz, are expected to enhance notebook performance by 25% to 30%, but they also will sap battery life by 10% to 15%, Purdy said.

Jerry Winchell, controller for IT at Progressive Insurance Co., in Mayfield Village, Ohio, which has about 3,000 Hewlett-Packard Co. and Dell Computer Corp. laptops, said his company has just started to map out a migration from 166-MHz notebooks to 233-MHz machines, so Deschutes isn't an immediate concern.



Toshiba's Tecra 550CDT lasts up to seven hours on two batteries

"The processor is a secondary thing," Winchell said. The size of a hard drive and the quality and size of the display are more important to their users, he said.

Frances Nievers, a senior systems analyst at Sun Oil Co. in Philadelphia who manages 300 Toshiba laptops, agreed.

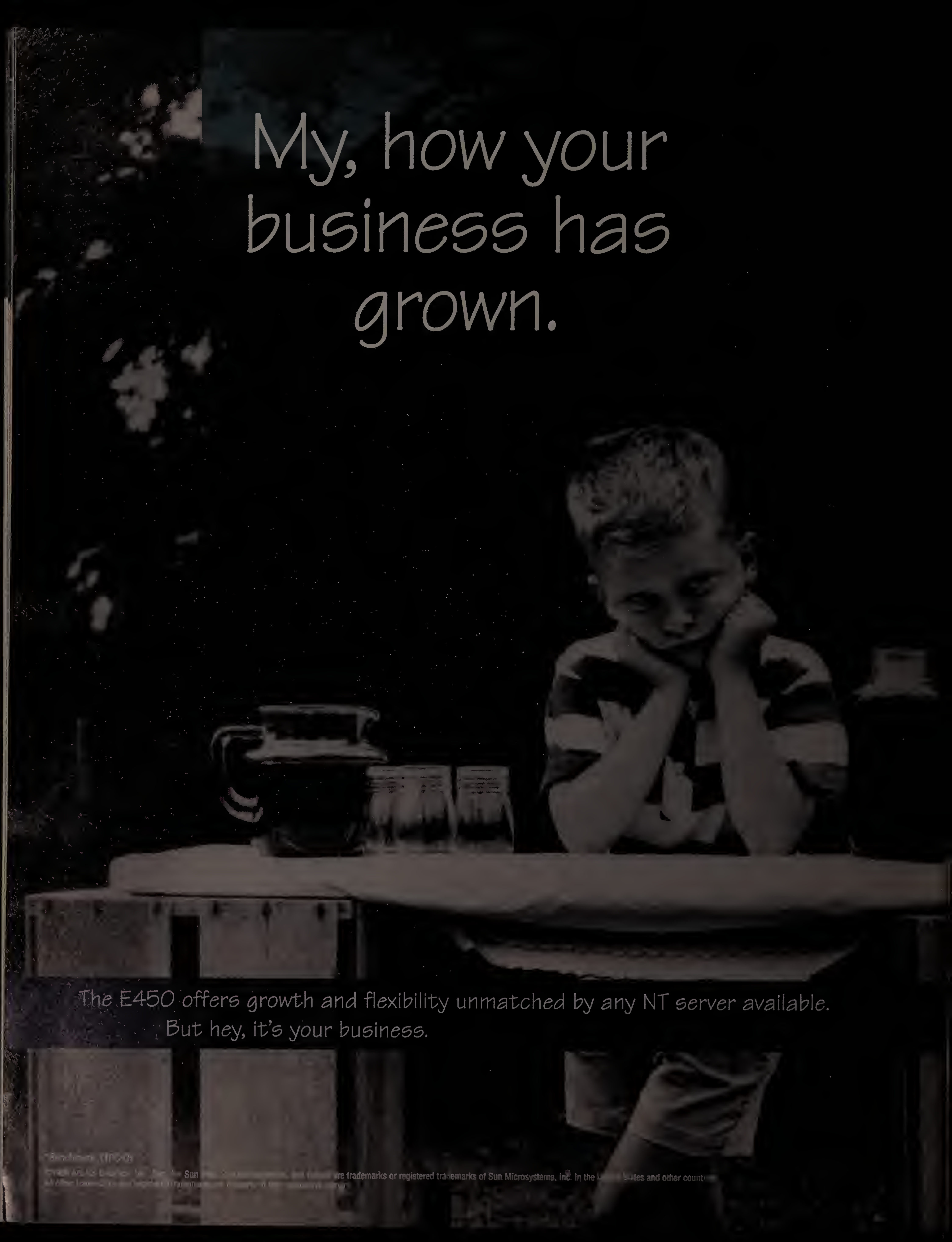
"The speed doesn't bother the user as much as disk space," he said, noting that most of the company's "power users" still use desktop machines. "We usually don't jump on the bandwagon. We wait until the notebooks come down in price."

Recent 266-MHz Tillamook notebook announcements include the following:

- Compaq Computer Corp.'s refreshed product line, including the Model 7000 desktop-equivalent line, Model 4200s, which are aimed at businesses, and the lower-cost 1500 models. The high-end Armada 7792DMT boasts a 13.3-in. color thin film transistor screen, a 5G-byte hard drive that is expandable to 10G bytes and power management capabilities. Priced at $5,699 for the Windows 95 model, the 7792DMT will be available next month. The company's 5.6-pound 7380DMT is available immediately.
- The Inspiron 3000 from Round Rock, Texas-based Dell. Priced at $3,299 and available now, it has 32M bytes of RAM, a 2.1G-byte hard drive, a variable 20-speed CD-ROM drive and a 13.3-in. active-matrix display.
- The Tecra 550CDT from Toshiba America Information Systems, Inc., in Irvine, Calif.

Intel's Tillamook, page 68

HP's OmniBook 3000 has a 13.3-in. display and zoomed video capability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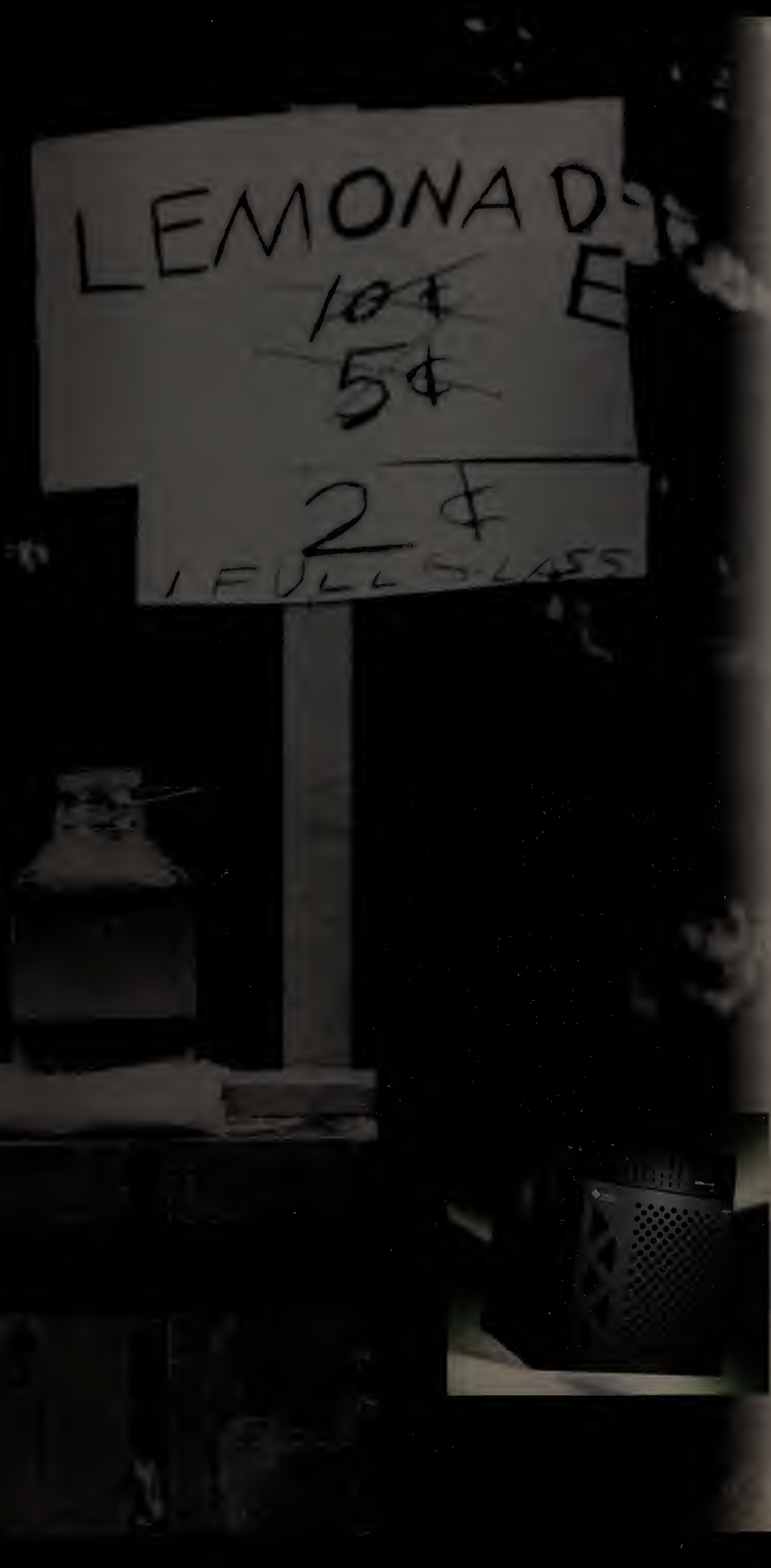

You can talk about raising the bar a notch or two, then you can talk about Sun Microsystems'® new Enterprise 450 workgroup server. Not only is the E450 competitively priced, it's faster, more stable and more flexible than any Microsoft Windows NT-based server.

Powered by up to four 250 or 300-MHz UltraSPARC-II™ processors, the Sun Enterprise™ 450 system outpaces the best Windows NT system by over 33%!* What's more, the E450 works seamlessly with all the workstations, PCs and Mac systems you have in place.

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Sun
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Web tools open data

CONTINUED FROM PAGE 65

nology and Java. Those connections let companies make better use of their enterprise data, said Ted Schadler, an analyst at Forrester Research, Inc., in Cambridge, Mass.

FAST INFORMATION

For example, by tying a legacy customer information database to the Web and making it accessible to a browser-enabled client, insurance or telecommunications companies can make more information available to service representatives faster than before, analysts said.

"There is a tremendous opportunity for companies to leverage their data across not only their existing user populations, but to ease access for remote users and make more information available to business partners, vendors and customers," said Lucinda Borovick, an analyst at International Data Corp., in Framingham, Mass.

The Mark Travel Corp., in Milwaukee, for example, uses Web products from Pericom Software in Hamilton, N.J., and Citrix Systems, Inc. to improve mainframe-to-desktop connectivity.

The company, which provides vacation packaging services to airlines, is considering linking some of its smaller sites and overseas agents back to its mainframes via Internet connections.

"Such products improve our connectivity and increase our ability to make data available to all our users and agents around the world," said Jef Kleyheeg, LAN administrator at the company.

COLLEGE CONNECTION

The University of Wisconsin, in Milwaukee, is using a Web product from UniKix Technologies, in Phoenix, to deliver mainframe-based information on registration, financial aid, course selections and grades to client desktops. Using it, students and faculty can access what they want via a graphical user interface.

Last week, connectivity products vendor Wall Data Corp., in Kirkland, Wash., announced six products as part of a new strategy aimed at providing users with Web-enabled legacy data access.

The company's new Cyberprise Server Products, for example, sit between a customer's legacy host system and client desktop.

The products link host-based data with any browser-based client via the Internet, an intranet or extranets. Web tools included in the announcement let users customize screen presentations and migrate host applications to the Web.

Wall Data joins a horde of relatively small to midsize vendors that offer products with varying degrees of the same capability. Included in the list are companies such as UniKix; OpenConnect Systems, Inc., in Dallas; Pericom Software; Citrix Systems, Inc., in Ft. Lauderdale, Fla.; and Graph-On Corp., in New York. □

Intel's Tillamook chip

CONTINUED FROM PAGE 65

The product has a 3.8G-byte hard drive, a 20-speed CD-ROM and floppy disk drive and a bay that allows users to hot-swap a second 2G-byte hard drive or a second battery that gives it more than seven hours of life.

The notebook will be available late this month, with pricing to be announced.

▪Palo Alto, Calif.-based HP's new OmniBook 3000. It weighs 6.7 pounds and has a 13.3-in. display, a 4G-byte hard drive and a 128-bit NeoMagic MagicGraph video controller and zoomed video capability. Pricing starts at $3,999.

▪Somers, N.Y.-based IBM will add a 266-MHz processor to its 380XD ThinkPad in March.

The notebook, with a 5G-byte hard drive, a 12.1-in. display and 32M bytes of RAM, will cost $4,200. □

NEW PRODUCTS

INTERGRAPH COMPUTER SYSTEMS has announced StudioZ RenderRAX II, a rack-mount, multiprocessor Pentium II rendering system for Windows NT.

According to the Huntsville, Ala., firm, the system enables animation and video and lets film professionals combine multiple RenderRAX II units into one environment. Individual units can support up to 512M bytes of memory. Each is powered by dual 300-MHz Pentium II processors and has a 4G-byte hard drive and a 10/100Base-TX Ethernet controller. The system costs $9,750.

Intergraph Computer Systems
(800) 763-0242
www.intergraph.com

MICROBOARDS TECHNOLOGY, INC. has announced Desktop CD-R Publisher, a hardware and software system for CD publishing in small businesses.

According to the Chanhassen, Minn., company, the system includes one four-speed CD-Recorder, an autoloader, two CD holders, editing software, premastering software for Windows 95 and NT, duplication software, print controller cable and print alignment posters. User requirements are a host computer with Windows 95 or NT, 16M bytes of memory and a SCSI host adapter. The system costs $5,690.

Microboards Technology
(612) 470-1848
www.microboards.com

RADIOLAN, INC. has announced the Wireless Backbone Link, a stand-alone bridge that enables in-building transmission among wireless products and 10Base-T Ethernet LANs.

According to the Sunnyvale, Calif., company, it has one wired IEEE 802.3-compliant Ethernet (10Base-T) interface and one RadioLAN wireless interface.

Support for 10M bit/sec. throughput and World Wide Web-based backbone management software that can be accessed via the Internet are also included.

The Wireless Backbone Link costs $999.

RadioLAN
(408) 524-2600
www.radiolan.com

Users' tips for NT backup and restore:

- **Test your system restore procedure regularly**
- **Document what is being backed up and to which tape devices**
- **Streamline drive letters to help users identify location of their data for restores**
- **Build added hardware redundancy wherever possible**

Client backup

CONTINUED FROM PAGE 65

International Data Corp., in Framingham, Mass., said Warchut's request will soon be answered by several vendor announcements.

"Client backup and restore will be a hot area for storage management software in 1998. And I imagine most of the initial announcements will be in the NT server space because of easier integration," he said.

NT BACKUP

In fact, the two market leaders in NT backup software, Scotts Valley, Calif.-based Seagate Technology, Inc. and Islandia, N.Y.-based CA, have confirmed upcoming plans to release utilities for streamlined client backup to NT servers.

Seagate's utility, called Active Storage Manager, is due next month as an option for Backup Exec (see related story at right). Its console will run on NT 4.0 or 5.0 servers, and it will be compatible with any Windows-based, 32-bit client system.

Administrators using Backup Exec will control what client information is backed up, when it is backed up and over which percentage of bandwidth. But users will be able to initiate data restores themselves using Windows Explorer.

A feature called "versioning" will allow multiple versions of a single document to accrue over time and be accessible to end users.

CA's client backup initiative, which will be delivered as enhancements to CA's storage management products in the second half of the year, is called Managed Client Backup. It will allow partial file backups at the data block level, include duplicate file detection and offer the ability to do periodic backups that will kick in much like screen savers do whenever client workstations are left inactive.

Bruce McMillan, a network administrator at the Houston-based chemicals and pharmaceutical company Solvay Group, said administrator control over bandwidth allocation would be critical because user freedom to do full client backups at any time could lead to network congestion.

McMillan said with newer applications that require Windows NT Workstation — such as his group's soon to be released application for tracking United Parcel Service shipping — he sees great benefit in enabling users to service their own backup requests.

"It means they won't have to call us, and my operations staff will be free to work on other projects," McMillan said.

He said he uses Backup Exec to back up 17 NT servers containing 200G bytes of electronic mail, database and file-and-print services data. □

Seagate plans updated agents for Backup Exec

Seagate Technology officials have confirmed plans to release updated Exchange and SQL agents for the company's Backup Exec Windows NT software. The options are planned for release in the second quarter along with Backup Exec Version 7.1.

The new Seagate Backup Exec Agent for Microsoft Exchange Server will enable backups and restores of users' mailboxes. That will let administrators restore the most critical user mailboxes ahead of full Exchange restores in the event of a server failure.

The updated Seagate Backup Exec Agent for Microsoft SQL Server will incorporate native SQL dump and load commands and allow individual table backups and restores ahead of full database backups and restores. — Nancy Dillon

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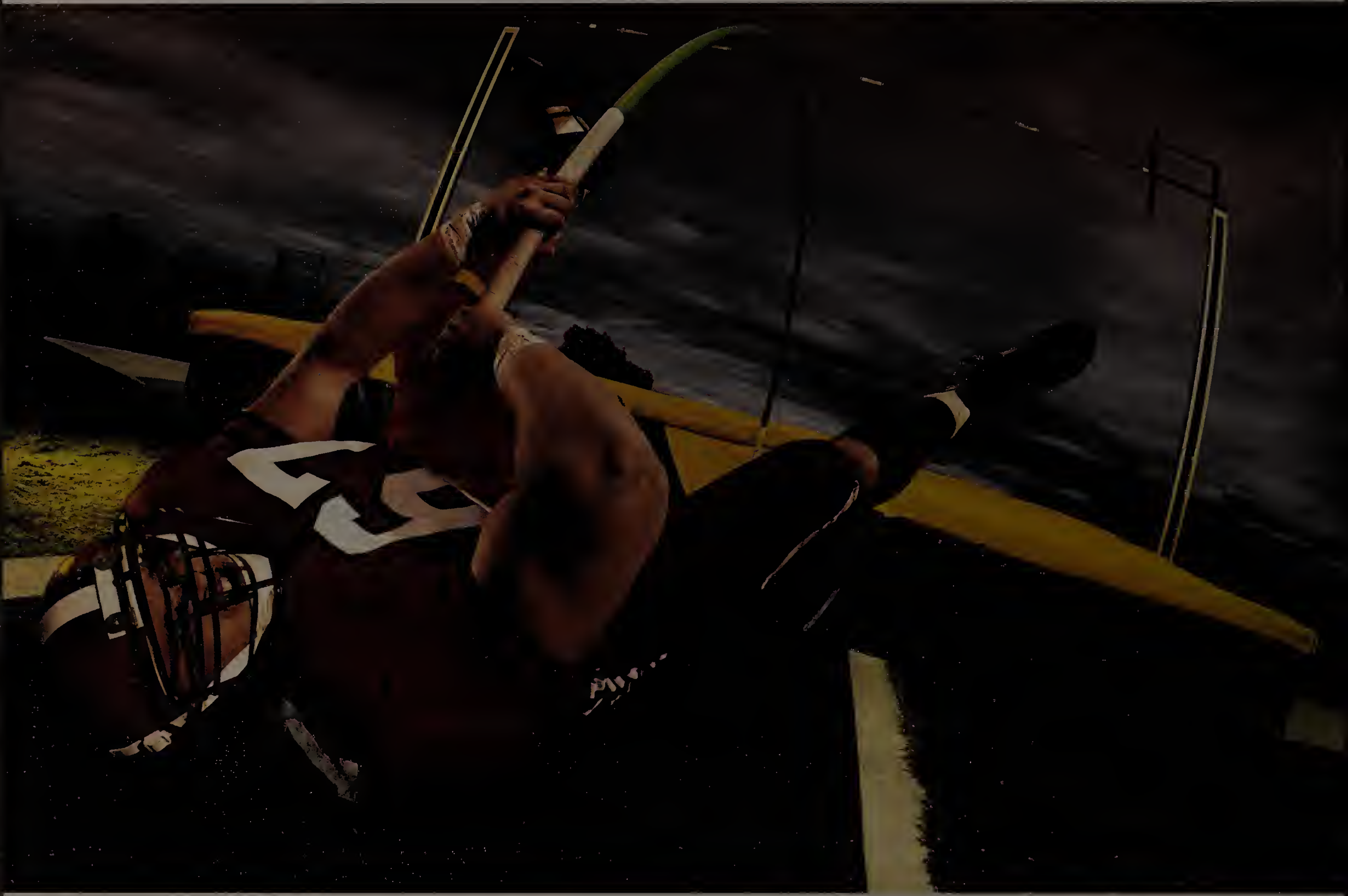

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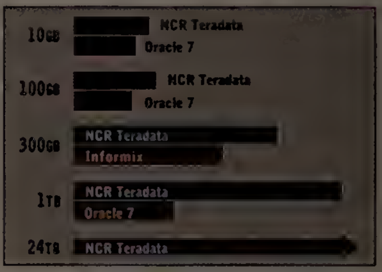

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Data Warehousing

Special Section: Data Mining ♦ Decision Support ♦ Strategies

Briefs

Forecasting software

Denver-based Decisioneering, Inc. next month plans to announce an upgrade of its Crystal Ball forecasting software with new risk analysis and decision optimization capabilities. Crystal Ball Pro uses neural network technology to forecast things such as potential investment returns and the likely impact of product pricing, officials said.

Test center opens

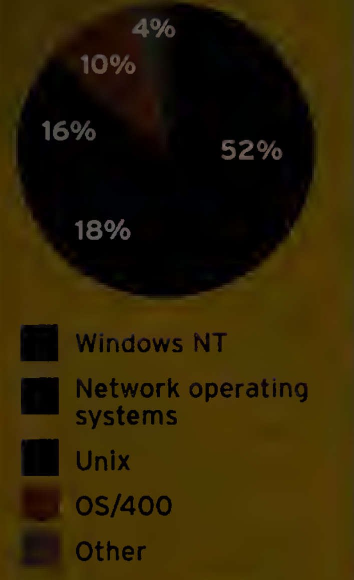
KPMG Peat Marwick LLP's consulting unit has opened a facility at Northern Arizona University in Flagstaff for testing data mining technologies. Companies can use the Center for Data Insight to evaluate tools and build prototypes of data mining applications, KPMG officials said.

Cleansing data

Group 1 Software, Inc., in Lanham, Md., has released data cleansing products for fixing address information in customer and prospect databases. SmartMatch 1.0 detects duplicate name and address listings, and the companion ListManager 1.0 lets users extract data for use in managing customer lists, company officials said.

WHERE IT SITS

What operating system are you using for data warehouses and data marts?



Base: 193 U.S. IT managers

Source: International Data Corp., Framingham, Mass.

Hybrid databases enter warehouse

▸ *Move reinforces scalability, adds flexibility*

By Linda Wilson

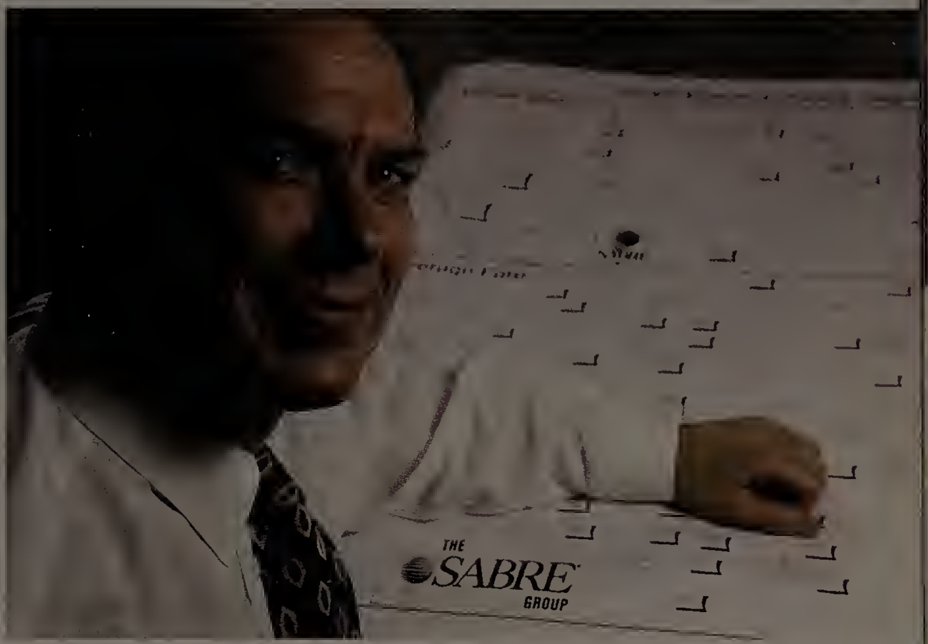
HYBRID OBJECT and relational databases are finding their way into the warehousing world. Companies are beginning to use data objects to embed sophisticated data cleansing, modeling, calculating and forecasting routines in a relational data warehouse.

Hybrid databases were developed as a way to add unstructured data, such as text or video, into a database. Informix Software, Inc. markets object extensions to its database called DataBlades. Oracle Corp.'s object extensions are called Cartridges, and IBM's DB/2 Universal Database supports multimedia extensions.

Because relational structures handle only simple calculations, such as addition or subtraction, users typically move data from the warehouse to a separate server or desktop application to perform complex functions. But doing sophisticated analysis within the framework of a relational database has performance and other advantages, even if it isn't right for everyone and tends to be proprietary, consultants said.

Hybrid databases appealed to Sabre Technology Solutions because they combine the scalability of relational databases with the flexibility of object code,

Hybrid database, page 72



DOUG HOPPER

Sabre Technology's Brad Jensen is building a warehouse for American Airlines using customized DataBlades

Putting queries where they belong

▸ *Sun Chemical takes query writing out of programmers' hands*

By Sharon Gaudin

SUN CHEMICAL CORP. is freeing up 10 of its programmers to build applications instead of writing queries by putting a technical-friendly tool into the hands of its nontechnical data warehousing manager.

Sun Chemical, a $3 billion printing ink company that emblazons its products on more than half of the packages in your local grocery store, has stitched together a string of six individual data marts to create its data warehouse. That has been working well enough for the company.

However, for the three and a half years since Sun Chemical started the data marts, a group of 10 Cobol programmers has been focusing its efforts on writing queries instead of building business applications.

"If it took one of our programmers three days to write a Cobol program to do something, I can do it myself in a day or less now," said data warehousing manager Dave Fritz. He now uses the data mart building component of Sagent Technology, Inc.'s data mart product. "Sometimes it might even be 10 days to one day, depending on the complexity of

Sun Chemical, page 72

Sun Che[illegible]
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queries

EDWARD SANTALONE

C O M M E N T A R Y

Problem-solving

SHAKU ATRE

DO I NEED to improve business operations or analyze and project trends?

That is one of the questions you must answer before you build your data warehouse. You can't decide after you've built it, because each warehouse requires different tools and approaches. And besides, to convince management of the warehouse's utility, you first need to know what business problem you're trying to solve.

Operational data warehouse applications provide decision-makers with information that helps them monitor and control the company. For example, a utility company could use accounting information in a data mart to plot spending over the course of the year to find opportunities for cost reductions. It also could study the annual or quarterly workload and reschedule staff to avoid overtime. Such applications use tools such as agent technology query and reporting tools and online analytical processing and multidimensional databases.

Analytical or data mining applications, meanwhile, use so-

Atre, page 72

Hybrid database systems

CONTINUED FROM PAGE 71

explained Brad Jensen, a vice president at The Sabre Group division that develops information systems for the travel industry.

Sabre built a 400G-byte summary-data warehouse for American Airlines in 1993 for several types of analysis, such as passenger demand, fares and routes. However, American Airlines later decided it wanted a larger warehouse with detailed data to improve the results of analysis, Jensen said. Sabre is now working on that project.

The first phase of the new 3T- to 5T-byte warehouse is scheduled to debut in June. It will use Informix's Dynamic Server with DataBlades (formerly Universal Server) running in a parallel environment. An important part of the strategy is the ability to reuse object code, Jensen said. Sabre is building customized DataBlades using the tool kit from Informix, which contains objects for security and integrity, for example.

The strategy also will ensure that everyone at American Airlines uses the same calculations. "American Airlines wants to standardize calculation methods and variable names," Jensen said. For example, departments have different ways of defining such common variables as market and fleet. Departments also may calculate formulas, such as the percentage of local passengers on a flight, differently.

Jensen declined to reveal investment or return on investment figures.

READY-MADE

For IT departments that don't want to custom-build object extensions from tool kits, vendors are marketing prebuilt products. Informix, for example, has 25 DataBlades for a variety of uses; another 35 are scheduled to be released during the first half of this year. Prefab DataBlades that handle time series analysis, statistical analysis, geographic mapping and data cleansing are available from Informix and a variety of third parties for $200 to $1,500 per concurrent user.

Another approach is touted by Broadbase Information Systems, Inc. in Menlo Park, Calif. Broadbase markets a server-based data mart product that combines a proprietary relational database with multidimensional capabilities and Java class libraries, allowing for data analysis ranging from simple arithmetic to complicated algorithms. The Java code also allows data transformations to occur within the database.

DSC Logistics in Des Plaines, Ill., installed Broadbase in October. The midsize company chose the product because it offers a lot of functionality, such as for data transformations and data mining, said Tom Gildea, interim chief information officer and a member of DSC's board of directors. At the same time, Broadbase is easier to install and maintain than a typical data warehouse at a Fortune 500 company, Gildea said.

It took four hours to install Broadbase and a couple of days to design the data model and identify the data elements. One person manages the system, Gildea said.

Despite the advantages, hybrid databases haven't caught on in the warehousing world. Robert Craig, director of data warehousing and business intelligence services at Hurwitz Group, Inc. in Framingham, Mass., said that is because vendors haven't marketed the benefits aggressively enough and their systems tend to be proprietary.

Nonetheless, Jensen is convinced that others will deploy hybrid databases. "We have seen the power of [object extensions] to add strategic business functionality," he said. ☐

Wilson is a freelance writer in Glen Ellyn, Ill.

Sun Chemical

CONTINUED FROM PAGE 71

what we need done. They were spending a lot of their time writing a program to extract the data or cleanse the data. And now I do it all myself," he said.

A data warehouse is a large set of historical information that covers several areas such as human resources, financial information and operational numbers.

A data mart is the little brother of the warehouse. It generally holds a much smaller amount of information that is focused on one area. A retail company, for example, might have a data mart that only has information on sweater sales or sales in the Southwest.

Sun Chemical, in Fort Lee, N.J., has separate data marts for human resources and operational information. But the majority of data marts are focused on financial information, letting the company know what its customers are buying, how much they are buying, when they are buying and what it cost Sun Chemical to produce its inks. Sun Chemical's half-dozen marts run from 2G to 3.5G bytes.

Fritz turned to Sagent, in Palo Alto, Calif., to put more power into his hands and more time into his programmers' hands. He said for a tool to be useful, it has to be powerful and extremely easy to use. "I'm not technical," said Fritz, who previously was the business systems analyst. "Three and a half years ago, my boss said, 'I want you to be the new manager of data warehousing.' And I said, 'What's a data warehouse?' "

Sagent eases Fritz's headaches by offering iconic and point-and-click programming. It also offers a data flow plan, which helps Fritz design how information will move into and out of the data marts.

Fritz runs Sagent on a Windows NT server, which runs most of the company's systems, along with one Digital Equipment Corp. Alpha server.

Karen Boucher, vice president of The Standish Group International, Inc., said any time a tool can put querying power in users' hands, it is an important step in the long process of culling useful information from streams of numbers.

"The easier it is for users to have access to and manage the information they get, the more the system will be used and the more strategic the information in the warehouse becomes," she said. "And the users who may not be the technical guys handling the warehouse are much more familiar with what they need to get out than the techie guys. If they're doing their own queries, they're doing better queries."

Carlos Cabrera, vice president of information systems at Sun Chemical, said giving Fritz the ability to get his own information out of the system was the only way to make the data marts financially viable.

"We just don't have the resources or the staff to do that otherwise," Cabrera said. "Even the tool we're using now with Sagent still needs more functionality to make that process more repetitive and more reliable. We need a good scheduling function that Sagent said is coming, and that will allow us to control the process without having technical people looking at it much at all."

And making the data marts produce reliable and consistent information without a lot of tinkering means a big cost savings for Sun Chemical.

BETTER DECISIONS

Fritz, who didn't provide cost or saving figures, said being able to clearly see and understand the information being stored helps his company make better business decisions. "We need to see what areas we're falling down in," he said.

Cabrera said, "It's the consistent access to data that allows us to make small but better decisions on a day-to-day basis." ☐

Atre: problem-solving

CONTINUED FROM PAGE 71

phisticated software to help staff members come up with insights about a company's customers, processes and markets. For example, a company might study its customer base and identify new niche audiences for its products. That could enable the company to tailor marketing more closely to customer needs. Tools used here include statistical analysis tools, discovery-based data mining tools and visualization tools.

Those categories are distinct, but companies often confuse them. When companies build a poorly defined data mart or data warehouse that delivers technical capabilities that aren't tied to solving a particular business problem, the resulting system usually isn't very good at either analysis or operational monitoring.

For example, a multidimensional database (MDD) lets you study the interdependence of many factors (dimensions) that impact how the business is running (by store, by salesperson, by product line, etc.). That can help you monitor the business. You first define these dimensions and then summarize the data to fit them.

What if you want insights into what customers buy? That will be difficult to do with an MDD because the data is already summarized in specific ways that define the problem. You could redefine the dimensions.

But summarized data will never really support wide-ranging analysis. You need to analyze the underlying detailed data. A data mining tool lets you study the detailed data from many angles.

Dividing applications into these two categories and seeing which type appeals to senior executives might also help you determine which is more likely to win approval. Some executives will be more excited by an application that promises direct improvements to operations through strengthened control in spending, personnel deployment, inventory control or manufacturing process efficiency. Others will prefer the "deep stuff" that analyzes the data and looks for breakthrough understanding and predictions about customer behavior.

Both categories have the potential for huge returns. But IT executives would be wise to try to create or buy applications that "look operational" and have the ability to solve business problems.

AVOID VAGUENESS

All too often, companies simply put the technical capabilities in place and expect that their purpose will emerge after they're put to work. Some say vagueness is necessary because business users don't know in advance what kinds of questions they'll need to ask.

But much of that vagueness could be avoided with better planning and IT's insistence (backed up by senior management) that nothing can be built unless and until it addresses specific business issues. ☐

Atre is president of Atre, Inc., a consulting firm in Port Chester, N.Y., that specializes in data warehousing and database technology. She can be reached at shaku@atre.com.

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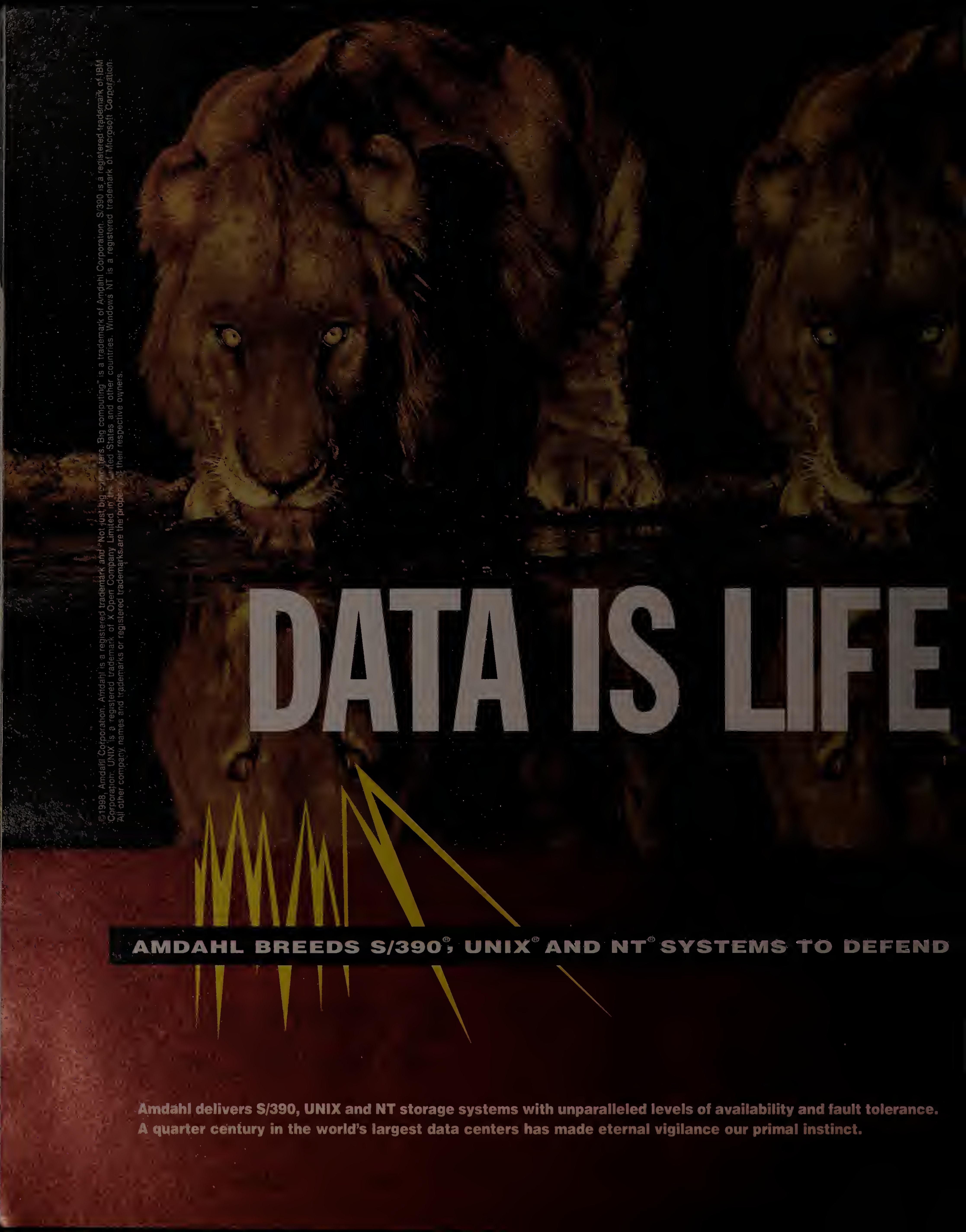
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With The Day fast approaching, our year 2000 Special Report focuses on preparedness and contingency planning. We'll help you get your house in order — and help you dial 911 just in case.

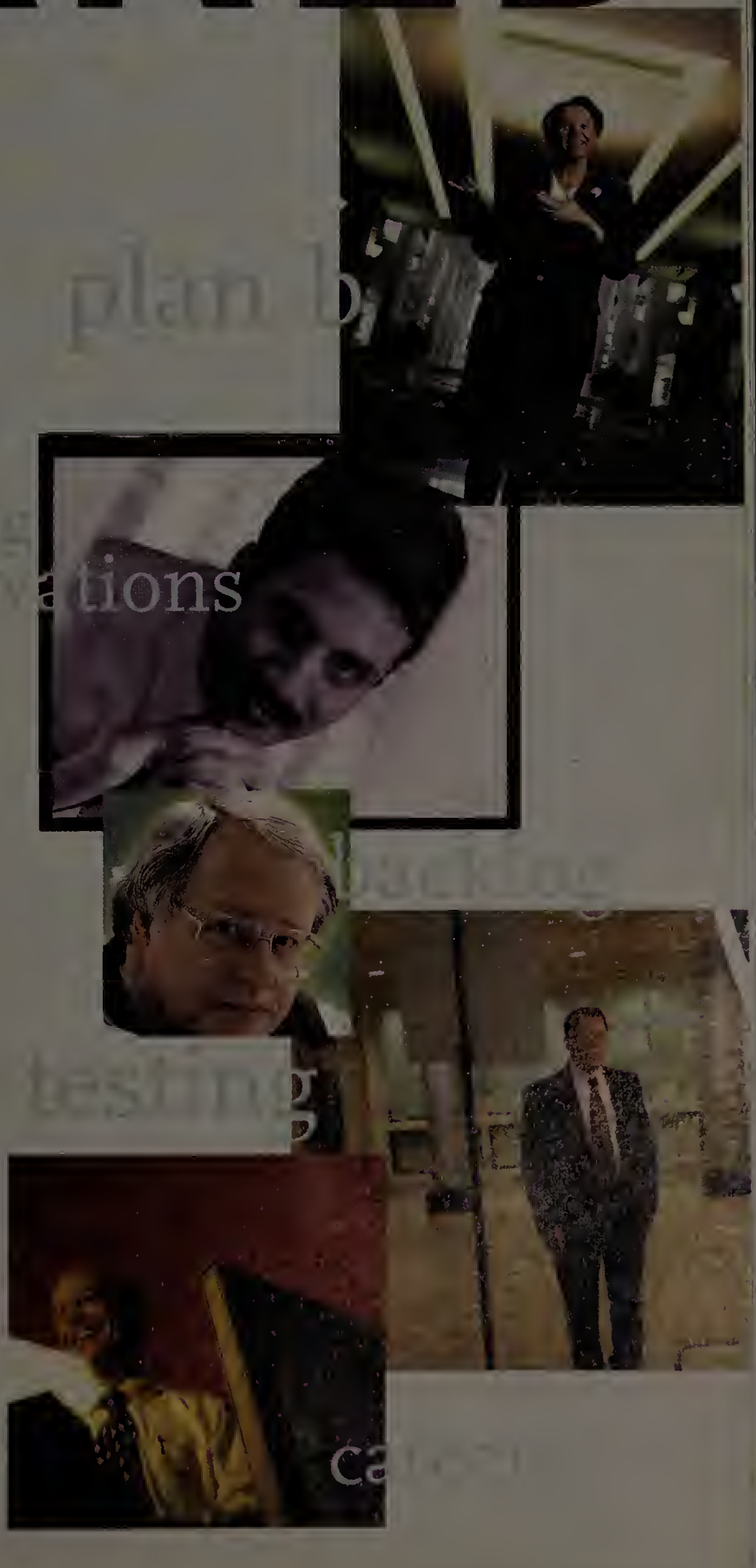
PLAN B Even the most meticulously prepared IS shop needs a backup plan in case everything goes haywire. Page 80

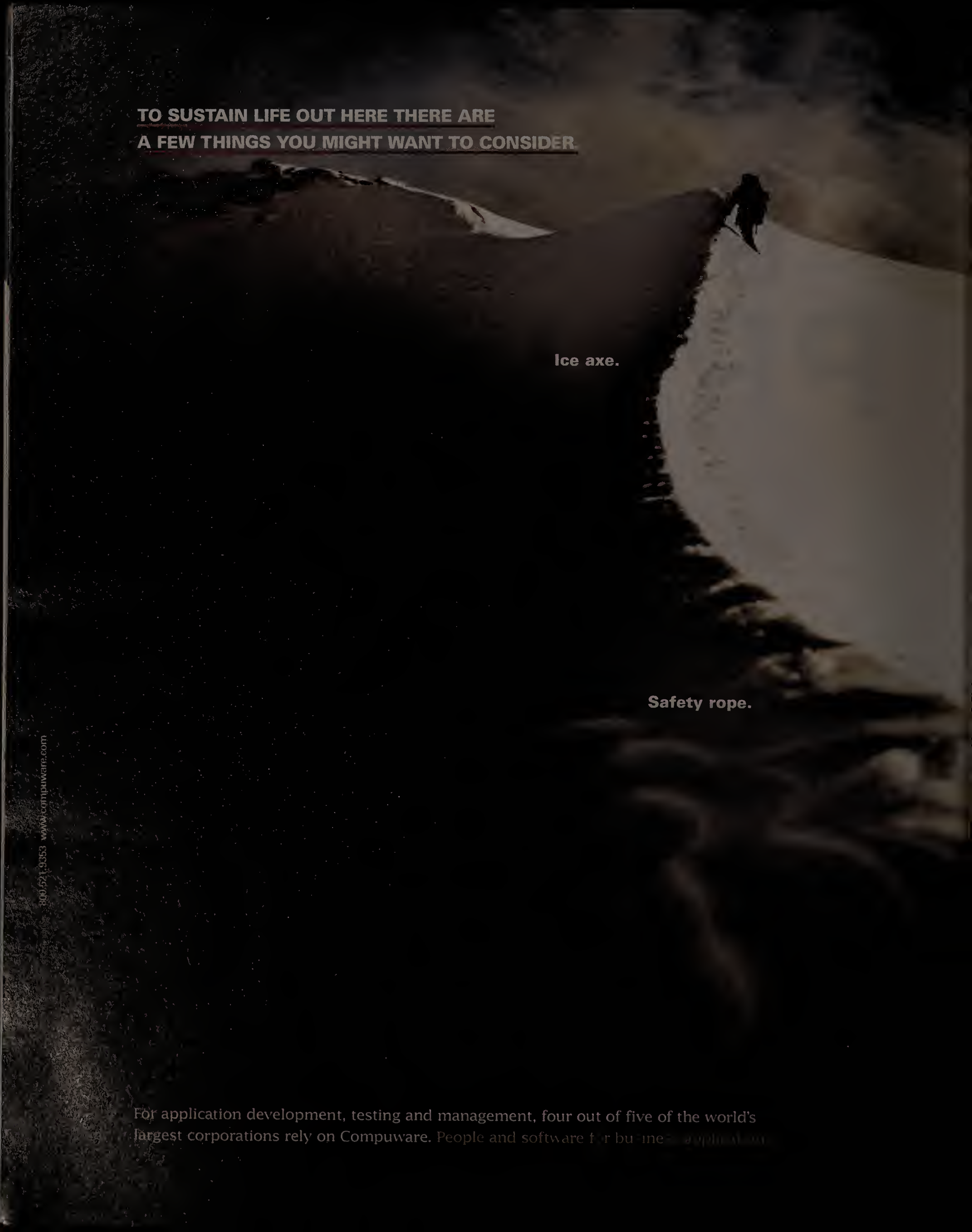
BACKLOG! New *Computerworld* columnist Ed Yourdon says you'd better prepare for the great IT moratorium of '98. Page 86

TESTING It's boring, it's tedious, it's vital. Our Review Center examines date simulation testing tools. Page 87

MAKING RESERVATIONS We asked IS leaders where they plan to be on 1/1/2000. Page 93

IT CAREERS Believe it or not, there's still time to flesh out your date-change staff. Follows page 93.

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Contingency planning

When DISASTER strikes

Even if you're 110% sure your systems will be ready for the date change, experts say it's a good idea to have backup plans

By Gary H. Anthes

When an information systems group at the state of Washington performed a routine test of its disaster recovery plan two years ago, it decided to take a peek at its own year 2000 problem. But setting the mainframe's system date forward to 2000 caused the entire exercise to come to a screeching halt. Testers' passwords had expired, the computer said.

That unexpected setback convinced the IS group not only that it needed year 2000 contingency plans, but also that those plans had to be tested.

Surprisingly, contingency planning is an idea many organizations have yet to embrace.

But experts say all companies should have contingency plans, even if their remediation programs are going well. No matter how much care is taken, some systems will break unexpectedly, and you can't assume suppliers and partners won't have year 2000 problems that will impact your business, they say.

Washington's Department of Social and Health Services has begun to put in comprehensive backups for the year 2000. For example, the Social Service Payment System — a huge, 12-year-old, mission-critical system with poor documentation — is now far along in remediation. But just in case, the state is now field-testing a commercial, off-the-shelf accounts payable package that can be turned on quickly if needed.

The payables package lacks the custom system's bells and whistles, but it could churn out the department's $50 million in monthly checks, says Kathy Rosmond, manager of the agency's Year 2000 Program Office.

The department also is developing a new case management system to replace several smaller legacy applications before Jan. 1, 2000. But if the new system isn't making satisfactory progress by a specified "trigger date," the IS group will resume year 2000 remediation work on the old systems, Rosmond says. In fact, one of the old systems has already been converted, even though it isn't expected to be used.

Meanwhile, other large organizations haven't yet given much thought to year 2000 contingency planning. Some say they'll get to it later, and some say they don't intend to make such plans at all.

Del Clark, year 2000 director at Phillips Petroleum Co. in Bartlesville, Okla., says the oil giant has 25 people working full-time and 150 part-time on its year 2000 project. He says he expects to have most of the conversion work done by year's end, and he doesn't intend to prepare formal, comprehensive contingency plans.

That's because the bulk of Phillips' date-challenged code will be swept away before 2000 by new, year 2000-compliant software from SAP America, Inc. and Oracle Corp., Clark says. "We have not done contingency planning because we assume they are going to make it. There is some slack in their schedule, so I think it's very realistic to think there's not going to be a problem."

As for software not covered by the SAP/Oracle work and other items that might fail, Clark says

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YEAR 2000 SCOREBOARD

An occasional series on year 2000 trends, issues and statistics

7 1 2
days to 1/1/00

Was 1997 the breakthrough year?

If 1998 is going to be the year that corporate America finally rolls up its sleeves and fixes many its year 2000 problems, then last year could very well have been the year in which chief executives woke up to the potential seriousness of the millennium bug. "The responsibility for grappling with year 2000 clearly has shifted from IT managers to the CEO," said Joel Goldhammer, a vice president at management consultancy A. T. Kearney's Strategic Information Technology Practice. Goldhammer made the comment in August after A. T. Kearney released a survey of Fortune 1,000 companies. According to the poll, 80% of the CEOs and non-information technology executives surveyed saw the year 2000 date-change problem as a business concern, while 69% agreed that it's a serious management issue.

A series of tracking polls taken last year by Cap Gemini America, a New York-based year 2000 services provider, showed that corporate awareness about the date-change problem grew last year.

Cap Gemini raised the following two issues in April, August and December in a tracking poll of 108 information technology directors and managers. The survey was conducted by Rubin Systems, Inc. in Pound Ridge, N.Y.:

specific contingency plans for individual areas will be developed when and if it becomes clear they are at risk.

Companies that need contingency plans most are least likely to have them, says Capers Jones, chairman of Software Productivity Research, a software developer and consultancy in Burlington, Mass. "Less than 10% of our clients have a contingency plan for dealing with the things that aren't going to be fixed on time, and they happen to be the companies that are fixing most of the things anyway," he says.

Many companies take too narrow a view of the year 2000 problem, concentrating only on application software, Jones says. "But how do you get into the building if the badge lock doesn't work, or place calls if your phone system is out? And what will you do if there is no electricity for five days in a row?" he asks.

One good approach is to build year 2000 contingency plans on top of existing disaster recovery plans, which normally include at least some of the failures Jones cites. And, like all disaster recovery plans, the year 2000 plans should be tested under as realistic conditions as possible, experts say.

Tim Morton, a vice president at Electronic Data Systems Corp., says there are barriers against contingency planning. "It is, in many cases, a politically incorrect term because it implies incompetence. The plans are not well received in many circles because you're suggesting doubt."

But for companies such as The Prudential Insurance Company of America, in Newark, N.J., contingency planning is a necessary and prudent part of operations. Prudential's year 2000 contingency plans cover three broad areas — application software, internal infrastructure and external partners — and there are multiple failure scenarios and responses for each element.

For example, each major application has a plan for what to do if it's not fixed in time, if it fails on Jan. 1, if it fails after Jan. 1, if it calculates incorrectly but isn't discovered until later, and so forth.

The plans will be formally documented, widely distributed and tested, says Irene Dec, vice president of corporate information technology and year 2000 program manager. "The last thing we want to see on Jan. 1 is a lot of beepers going off and no one knowing what to do," she says. "Everyone will be carrying their little contingency plan in their pocket."

Dec says Prudential simplified and standardized its planning by centrally preparing "contingency templates" — checklists for business units to use in building their own plans.

Irene Dec at The Prudential Insurance Company of America: "Everyone will be carrying their little contingency plan in their pocket"

NICK CARDILLICHIO

Prudential sent its suppliers letters inquiring about their year 2000 programs. A corporate risk team will review the responses to determine what kinds of contingency plans are needed, Dec says. The risk team, which Dec heads, includes representatives from the IS, audit, control and legal departments, the company's seven lines of business and the corporate business continuation organization.

Such interdisciplinary risk teams are important for contingency planning, experts say. Morton says senior executives often believe the date-change problem is purely technical, so they hand the whole thing to IS. But IS may not be able to accurately determine the financial and legal impacts of an application's unavailability, he says.

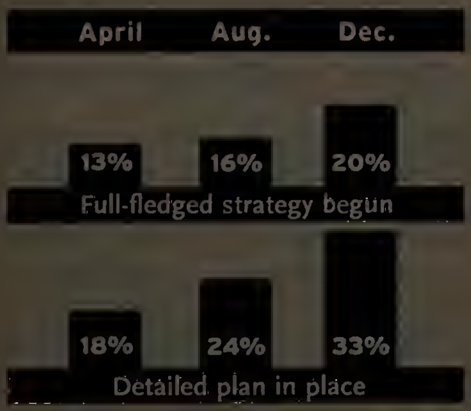
BankBoston has a year 2000 team in IS sponsored by the chief technology officer and a corporate year 2000 team — which worries about resources such as power and telephone — sponsored by the bank's head of risk management. IS will prepare its year 2000 contingency plans this year, says David Iacino, a senior manager in IS.

Iacino says the bank also will do joint contingency planning with key partners such as the Federal Reserve System.

But Iacino says it's possible to go too far with contingency planning. "We could have a totally internal plan. We could have one with supplier A and another one with supplier B and with customers and so on," he says. "You could get consumed by it."

Geico Corp., in Bethesda, Md., tests its disaster

Disaster, page 83



While the figures show obvious improvement, they disappointed Jim Woodward, senior vice president of Cap Gemini's TransMillennium Services. But despite the apparently slow growth in awareness, there is no shortage of year 2000 optimism among those who took part in the survey. About 87% of the companies surveyed expect more than half of their systems to be compliant by Jan. 1, 1999.

"Corporate America is disturbingly behind schedule in dealing with the year 2000," Woodward said last month. "After nearly three years of tracking corporate response to the year 2000 problem, we would have expected to see significantly more firms with detailed plans in place by now." □

"The year 2000, I guess, will go around every boardroom in corporate America for the next two years."

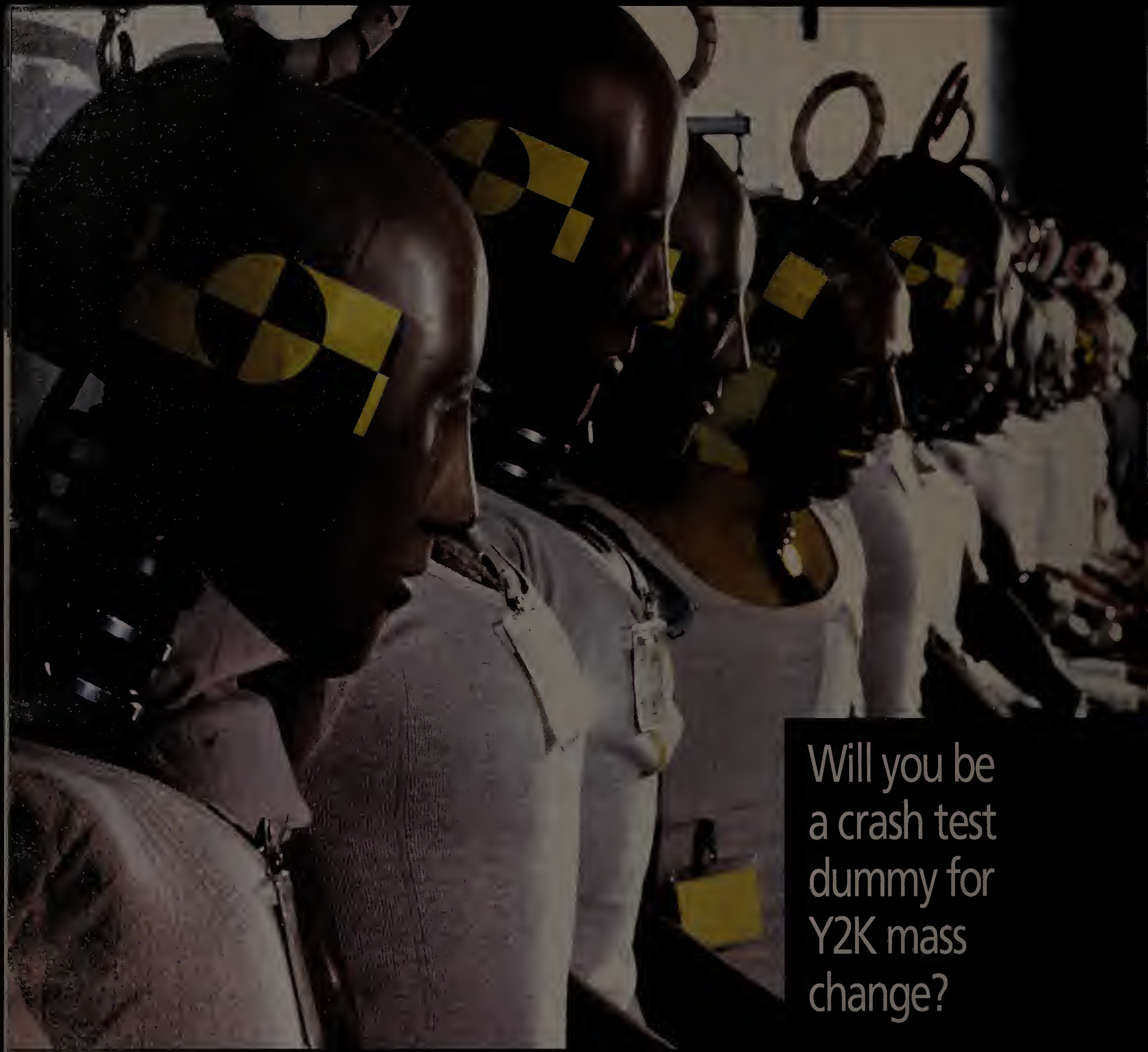
— Jos Stalenhoef, chief transformation officer, Chiquita Brands International, Cincinnati (November 1997)

The costs of being compliant

The following are some estimates of what it will cost companies and organizations to prepare for 2000:

- Gartner Group, Inc.: $600 billion; closer to $1 trillion with litigation costs included
- Capers Jones, Software Productivity Group: More than $3.6 trillion
- U.S. government: Its fixes alone will cost at least $3.9 billion
- Canadian gov-

Scoreboard, page 86



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DISASTER

CONTINUED FROM PAGE 81

recovery plans annually and will add year 2000 tests this year and next. The plans will include backups for services such as telephone, water and power, says Ron White, year 2000 coordinator at the company.

But White concedes there isn't much backup possible for telephone service and that a prolonged outage would be a "showstopper" for the company, which transacts most of its business over the phone.

Geico's plans will include manual backups for some important automated processes, White says.

For example, managers might retain paper copies of data on all policyholders as of Dec. 31, 1999, in order to cross-check data from the online system if a customer disputes it.

Geico also could alter some business practices early in January 2000 as a contingency measure.

"We could take information from customers manually — so it is recorded in multiple places — if there are problems with automated systems," he says.

Geico has pushed its year 2000 planning to a level of fine detail. For example, it will lay in an extra supply of paper for printing policies and checks in case suppliers' year 2000 challenges keep them from making deliveries.

Like many companies, Geico will have its IS staff in a state of high alert in January 2000. In fact, it plans to have its New Year's party Jan. 1, on-site.

"If something breaks, we'll be here to fix it," White says. ☐

Anthes is Computerworld's *senior editor, special reports.*

Legal considerations in year 2000 contingency planning

Although most contingency planning for the year 2000 focuses on technical and business issues, experts say there are some legal considerations that a company overlooks at its peril.

Robert Kenney directs a six-lawyer team of year 2000 specialists at Hogan & Hartson LLP in Washington, and he advises clients to prepare for damage claims from customers, partners and shareholders. Negotiate some risk sharing in contracts, if possible, he says.

Shareholder lawsuits will be encouraged if management doesn't adequately disclose year 2000 problems or if it fails to exercise due diligence in solving them, Kenney says. He says it's important for a company to carefully document its year 2000 remediation efforts, especially its reasons for taking any shortcuts that might later be construed as negligence.

Kenney also advises companies to review and possibly strengthen insurance policies for things such as business interruptions, errors and omissions, product liability and malpractice.

Warren S. Reid, a technology and legal expert and president of WSR Consulting Group, in Encino, Calif., offers this additional advice:

- Contracts with contingency suppliers require special care. They are complex because they're conditional.
- Scrutinize contracts with your primary suppliers. "If they are struggling, can you discontinue and go somewhere else?"
- Examine contracts with customers. "What if you can't deliver? Can they sue you for consequential damages? Must you find a replacement?"
- Be aware that contingency outsourcing contracts are costly and complex because they're likely to be for short periods. — Gary H. Anthes

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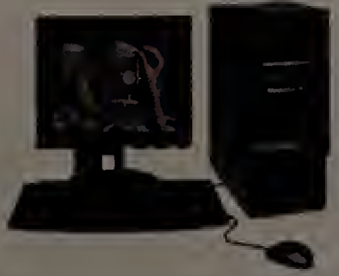

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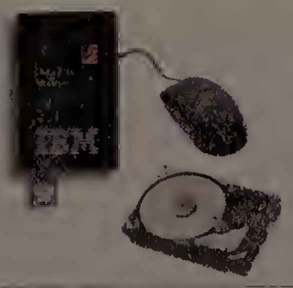

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ED YOURDON

READY FOR THE GREAT IT MORATORIUM OF 1998?

Enterprisewide moratoriums on new IT development will be the big news this year. If your organization hasn't declared a moratorium yet, it probably should.

Why? Because of the increasing urgency of the year 2000 problem, which many organizations have avoided dealing with until it's almost too late. The governor of New York imposed a moratorium in September, and the governor of California did it in November. The secretary of the Air Force announced one last June, and by now it's spreading throughout the entire Defense Department and many other federal agencies, too. More importantly, it will hit the entire private sector of the economy as 1998 budgets are announced.

There were a few isolated examples of moratoriums last year, mostly in proactive organizations that did the arithmetic and concluded that they didn't have enough resources to focus on *anything* but the year 2000 problem in the months remaining before the Big Day. But for most organizations, the wake-up call came during the budget-preparation period that traditionally occurs in the late fall and early winter. In late 1996, when the '97 budgets were being prepared, the year 2000 still seemed far, far away — and not much of a problem, either.

Organizations have ongoing maintenance work that's required to keep the enterprise running; you also might have some unavoidable development work because of government regulations or other non-negotiable demands on your company. But anything that could be considered optional or discretionary should be brought to a screeching halt until you've not only repaired your own internal systems, but also taken the necessary steps to deal with the business consequences of the year 2000.

This isn't going to be a popular message, and it will almost certainly meet with heavy resistance from end-user departments that view themselves as semi-autonomous profit centers; in a decentralized organization, they may feel they have the authority to ignore the moratorium request from the year 2000 program office. But 2000 involves survival, and it will probably be up to the CEO and the board of directors to impose the necessary moratorium to ensure survival.

SO, WHAT'LL BE ON HOLD?

What projects will have to be put off? For many companies, a moratorium will mean deferring the rollout and deployment of Windows NT. It may mean postponing the implementation of Windows 98 (assuming that Microsoft even bothers to release it in 1998) and perhaps Office 98, as well. It means that a lot of the sexy new Java/Internet/Web projects will have to be deferred until 1999 or beyond. It probably means deferring the customary upgrades to PC hardware and software — knowledge workers will have to forgo those new Pentium IIs.

Along with a moratorium on brand-new application development, this year will bring two other forms of moratorium: one on replacement of legacy systems with new technology versions of homegrown applications and another on replacing proprietary legacy systems with large, complex packages from vendors such as SAP, PeopleSoft and Baan. Both forms of replacement were viable business strategies from 1995 to 1997, when organizations were first awakening to the year 2000 problem, but the window of opportunity is now effectively closed. It takes a large organization at least two to three years to adopt, customize and install a large, vendor-supplied package; there isn't enough time left to ensure finishing that task.

Similarly, it may have made sense in 1995 or 1996 to launch an in-house project to replace an aging mainframe system with a new client/server or Web-based system. But given most organizations' dismal track record for finishing development projects on time, any manager who can spell the words "risk management" has to put a moratorium on that strategy, too. Savvy organizations launched dual year 2000 projects in 1997; year 2000 remediation of old systems took place concurrently with separate projects to build replacements. This year, there may be a few cases where that still makes sense, but most organizations no longer have the human resources for such a redundant approach.

Bottom line: The IT moratorium is here, and it's real. The sad thing is that it's too late and too uncoordinated throughout the economy. It won't happen in Europe and Asia until next year. It won't eliminate the year 2000 problems associated with the supply chain, which, for most organizations, involve 1,000 to 3,000 separate companies. The moratorium will reduce the size and scope of the year 2000 problem in an organization, but when the Big Day arrives, the only surviving organizations will be those that have adopted a full-scale contingency plan. As Oscar Wilde wrote in *The Picture of Dorian Gray*, "The basis of optimism is sheer terror." ☐

Yourdon heads up the Y2K Advisory Service at the Cutter Consortium in Arlington, Mass. (www.cutter.com/consortium), and is co-author (with his daughter, Jennifer) of Time Bomb 2000 *(Prentice Hall, 1998), which describes the personal impact of the year 2000. His E-mail address is ed@yourdon.com.*

SCOREBOARD

CONTINUED FROM PAGE 81

ernment: It will spend about $1 billion to fix its computers

- Statistics Canada: $12 billion.

And compare the estimated line-of-code repair costs in 1993 with a research firm's report in mid-1997:

- Sept. 6, 1993: From *Doomsday*, written by Peter de Jager in *Computerworld*: "The [year 2000] crisis is very real and potentially very costly. Ken Orr, principal at the Ken Orr Institute, and Larry Martin, president of Data Dimensions, Inc., estimates that Fortune 500 organizations will each have to spend about 35 cents to 40 cents per line of code to convert all of their existing systems to accept the change from the year 1999 to 2000.

"This translates into about $50 million to $100 million for each company. . . ."

- July 1997: Estimated cost per line of code (from Technology Management Reports, a San Diego-based research firm) based on when a company begins its date-change conversion work:

1st half of 1998: $1.75
2nd half of 1998: $2.35
1st half of 1999: $2.95
2nd half of 1999: $3.65
1st half of 2000: $4

So, what could go wrong?

Here's a short list of things that could break down come Jan. 1, 2000, if warnings aren't heeded:

- Microwave ovens
- City lighting systems
- Air traffic control
- The world's telephone systems
- Delivery of goods
- Delivery of bills
- Delivery of government checks
- Automated teller machines

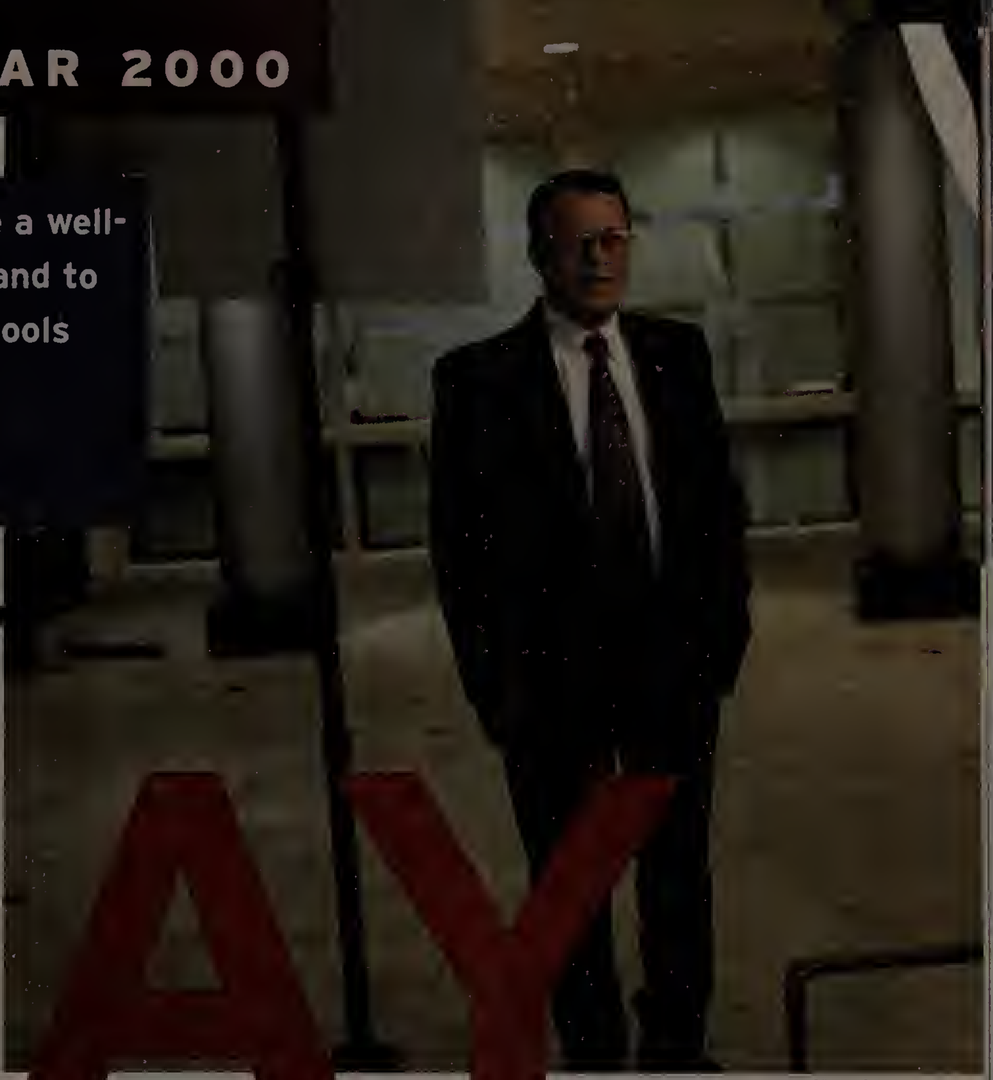
Other predictions include . . .

- Deaths in hospitals (Mike Smith, a doctor/computer expert in England, last

Testing tools

It's tomorrow TODAY

> **"It pays to have a well-developed plan and to have whatever tools are available."**
> **– Lon Rinehart, Ohio National**



TED RICE

Date simulation tools will begin to take on an important role in year 2000 projects

By Amy Malloy

It's 1998. If you don't start year 2000 testing this year, you'll be in for a rude awakening come Jan. 1, 2000. You see, the test phase will represent 40% to 60% of your year 2000 budget.

In the past, companies have scrimped on testing to get a programming project done close to deadline. That isn't an option with a year 2000 project. If you don't test thoroughly and get it done on time, your systems might fail, and you could end up out of business.

Year 2000 teams this year are likely to add date simulation tools to their testing collection. Such tools are a good bet for anyone with a mainframe year 2000 problem, according to analysts. The products convince the system that it's working in the future by exchanging system dates with test dates. For example, once your programmers have identified and fixed date calls in your applications, you can test those fixes by making today's system date

It's tomorrow – today, page 88

month told *The London Times* that a 10% compliance failure rate will result in 600 to 1,500 deaths.)

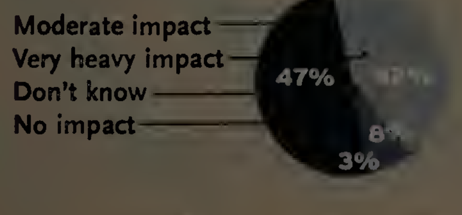
- Elevators will drop to the bottoms of buildings.
- Computerized sprinkler systems could ice your lawn in midwinter.
- And last but certainly not least: A worldwide recession. ☐

To the back burner?

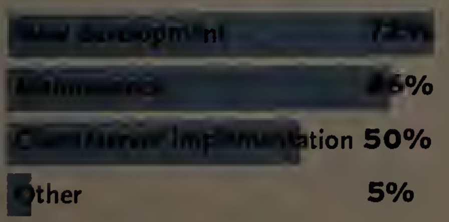
The date-change problem could hold back the completion of other IT projects in corporations. An overwhelming percentage of respondents to a recent survey conducted for Viasoft, Inc. in Phoenix expected their year 2000 conversions to have a moderate to heavy impact on other IT initiatives, with maintenance and new development being affected the most.

The U.S. Army, in fact, has postponed enhancements on all its IT systems until they have been analyzed, fixed, tested and certified as being year 2000-compliant. "We must deal with [year 2000] now so that our soldiers can continue to place well-founded confidence in their weaponry and automation tools through the change in [the] millennium," Army officials said in a recent memo.

What impact will year 2000 have on other initiatives?



What initiatives will be affected?



Source: Viasoft Cyberstats Year 2000 Survey, conducted by Plugin Datamation, October 1997

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It's tomorrow –
TODAY

CONTINUED FROM PAGE 87

appear different to the application. You might plug in a key date such as Jan. 1, 2000, or the end of the first fiscal quarter in 2000, March 31. Analysts mention eight tools in this market (see vendor list, page 89). What follows is a look at how your peers are using them.

HOW YOU USE THEM

Chief systems programmer Fred Ohr is using HourGlass 2000, a date simulator from Mainware, Inc., primarily in CICS. He says HourGlass works well because each tester for Pinellas County in Clearwater, Fla., can turn the simulator on or off for his terminal or transactions.

Bell Atlantic Corp. in New York is having good luck using HourGlass 2000 to test a sequence of dates, such as Jan. 1, 2000 and Feb. 29, 2000, because 2000 is a leap year, says Phil Stanley, manager of the Baby Bell's year 2000 testing strategy.

Fina Oil and Chemical Co. in Dallas uses Simulate 2000 from Prince Software, Inc. for unit testing, running one component of a system for testing, says Jack Sanders, group leader. The company simulates five unit test dates to check changes made to programs. Sanders says the only thing that makes him uncomfortable with a date simulator is that the date comes from the date simulator package and not the mainframe. Therefore, Fina has a logical partition with which the company can set the machine clock ahead for additional testing.

Analysts stress that date simulation tools address only one aspect of testing. Companies need to do other types of testing as well (see story, page 89). Most date simulation vendors agree with that, says Carl Gehr, a principal at Edge Information Group, a consultancy in Cincinnati. He is skeptical of vendors that claim they can do everything and warns users to beware of them.

12 criteria a date simulation tool should meet BEFORE you buy it

① Intercepts requests to all four date references: STCK (store clock), SVC11 (service calls), PC (program calls), CVT (communications vector table)

② Enables date selection from mid-20th to mid-21st century

③ Provides for "rolling clock" capability after a test date has been chosen so programs run as they would with a real system clock

④ Requires no changes to the system, job control language or application

⑤ Supports all time/date formats

⑥ Supports all programming languages, including Cobol, PL/1, assembler, Rexx, EXEC and CLIST

⑦ Supports online processing, including CICS, IMS and CA-IDMS at the terminal, transaction or program level

⑧ Supports single or multiple jobs, steps, procedure steps or program names

⑨ Supports applications such as DB2 from IBM, Natural from Software AG and Ideal from Computer Associates International, Inc.

⑩ Supports ISPF

⑪ Provides for simple implementation, such as job name and simulated date

⑫ Provides support for LE/370 (Language Environment/370)

Source: Meta Group, Inc., Stamford, Conn.

NOT ROCKET SCIENCE

Working with these tools isn't like programming in C or building a data warehouse. Users and analysts say date simulation tools are relatively easy to use and install, so there isn't much of a learning curve.

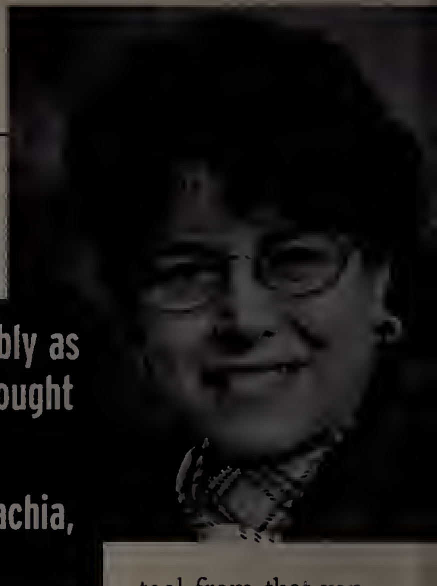
Mass Mutual Life Insurance Co.'s year 2000 team found HourGlass 2000 to be fairly straightforward. The key is understanding that the tool provides help with a specific type of test, which works well, says Priscilla Mandrachia, director of intercession and compliance on Project 2000.

The same held true for Fina Oil and Chemical. Sanders' team didn't need any formal training; they just used the manual that came with the tool. "I think it took our tech service people maybe just a half a day to read the book and download the tapes," Sanders says.

WHOM TO GO WITH

Analysts declined to recommend a specific date simulation tool. The major players are continually adding functions and features to their products, which makes it hard to pinpoint a leader, says Rich Evans, an analyst at Meta Group, Inc. in Stamford, Conn.

Gehr agrees: "I don't think there is any ultimate tool because it depends very much on your environment."



> "Testing is probably as difficult as we thought it would be."
> – Priscilla Mandrachia, Mass Mutual

But analysts say if you already have a relationship with a vendor that sells a date simulation tool, you should buy the tool from that vendor. "Stick with the people that brought you to the dance," says Dick Heiman, a research manager at International Data Corp. (IDC) in Framingham, Mass. The reasons: You know you can trust that vendor, and it will cut down the acclimation time.

That is why Lon Rinehart went with Compuware Corp.'s date simulator, XChange. He uses other testing tools from the vendor, such as File Aid/Data Ager to age data coming in and out of programs. Also, XChange works well with the core applications in-house, primarily DB2 and IMS, says the systems officer at Ohio National Financial Services in Cincinnati. "It pays to have a well-developed plan and to have whatever tools are available to help you out with it," Rinehart says.

A previous relationship with Prince Software was part of the reason Sanders chose Prince's Simulate 2000. It also helped that he received a free 30-day trial of the product. He was able to make sure the product worked in his environment before committing to it; he recommends that companies looking at date simulation tools test before they buy.

"We have a long-standing relationship with Compuware," says William Brydges, vice president of information systems at Comerica, Inc. in Detroit. People at Compuware know Comerica's systems, so XChange was a natural fit, he says.

ASK THE RIGHT QUESTIONS

People shouldn't spend a lot of time choosing a date simulation tool. "It is not a huge expense to get the date simulation part," says Liz Barnett, a vice president at Giga Information Group in Cambridge, Mass. "It does not merit a six-month evaluation of these tools."

But time is of the essence, so it's important to get the right tool the first time. You have to ask vendors the right questions. You need to make sure the tool supports the languages and subsystems you use, Gehr says. You also need to make sure the product doesn't invalidate your license by interfering with traps some software contain to keep you from using the product past your license expiration date, he says. You should ask vendors if they have worked out this problem, he adds. ☐

Malloy is Computerworld*'s associate editor, Review Center.*

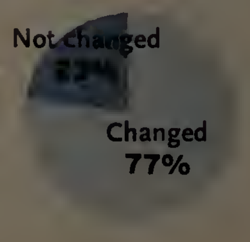
SCOREBOARD

CONTINUED FROM PAGE 87

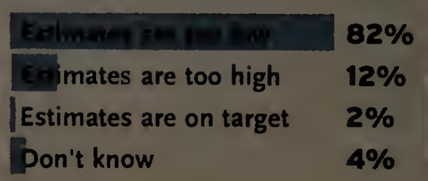
Low estimates not enough

A survey by Cap Gemini America, a New York-based year 2000 services provider, found some other interesting information about what's happening in the trenches.

More than three-quarters of surveyed companies have changed their approach to the problem since they started.

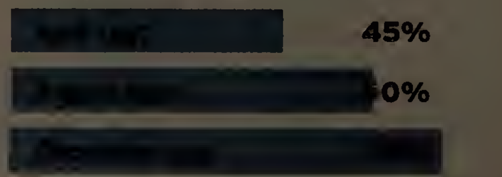


Four out of five companies have been underestimating their year 2000 costs.



During 1997, firms increasingly perceived a need for more staff.

(Percentage indicating "yes" to various staffing issues)



Source: Cap Gemini America survey. Base: 108 IT directors and managers. Poll was conducted by Rubin Systems, Inc., in Pound Ridge, N.Y., in December 1997.

A snitch in time . . .

If you know of a year 2000 problem that your company won't acknowledge, year 2000 expert Peter de Jager wants to hear from you.

De Jager has launched a program that he says he hopes can force the hands of organizations that are reluctant to acknowledge year 2000 problems.

The program is called Project Damocles, named after the Greek mythological figure who sat at a banquet with a sword hanging above his head.

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   - 12. Vice President, Asst. Vice President
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   DEPARTMENTAL MANAGEMENT
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   - 70. Medical, Legal, Accounting Mgmt.

   OTHER PROFESSIONAL MGMT.
   - 80. Information Centers/Libraries, Educators, Journalists, Students
   - 90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

   Operating Systems
   - (a) Solaris
   - (b) NetWare
   - (c) OS/2
   - (d) Unix
   - (e) Mac OS
   - (f) Windows NT
   - (g) Windows
   - (h) NeXTStep

   App. Development Products ☐ Yes ☐ No

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   - (e) Mac OS
   - (f) Windows NT
   - (g) Windows
   - (h) NeXTStep

   App. Development Products ☐ Yes ☐ No

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Tools, etc.

Users and analysts stress that although date simulation tools are useful, they aren't a testing panacea.

Date simulation tools take care of an important chunk of year 2000 testing, but other testing tools, methodologies and environments are needed to conduct thorough year 2000 testing.

Testing is expensive and time-consuming, but it's also crucial, analysts say. They say they fear that companies will run out of time and not test thoroughly or that they will rely solely on a date simulator tool.

Date simulation tools are a precursor to "time machines" and logical partitions, analysts say. Time machines — stand-alone test machines with the system clock set forward — are the most desirable if you can afford them, says Dick Heiman, a research manager at IDC. But there are other options, including leasing extra equipment, using a service bureau or finding space and time on your own machines, he says.

Every date simulation tool user we spoke to is conducting some additional type of year 2000 testing. Mass Mutual has a methodology specifically for Project 2000, a logical partition for testing and other testing tools, says Priscilla Mandrachia, director of intercession and compliance on Project 2000. "Testing is probably as difficult as we thought it would be," she adds.

Ohio National Financial Services is conducting tests with its production logical partition, and it uses other testing tools from Compuware, says Lon Rinehart, systems officer. He warns other companies to plan testing. He says it's going to be the most labor-intensive, time-consuming part — about 60% — of the company's year 2000 project.

Besides ensuring year 2000 compliance, the money and energy spent on testing gives companies a more complete understanding of their IS infrastructure and better testing methods, analysts say.

If companies establish a comprehensive testing process, they will be ready to handle similar projects that are certain to arise in the future, Heiman says. And some companies that never had testing tools before now will, he says.

That's proving true for Bell Atlantic. Besides keeping the Baby Bell in business, year 2000 testing gives the company, which recently merged with Nynex Corp., a single, comprehensive inventory of all of the varied pieces of its massive network, says Albert Patterson, executive director of the year 2000 program office. ☐

— *Amy Malloy*

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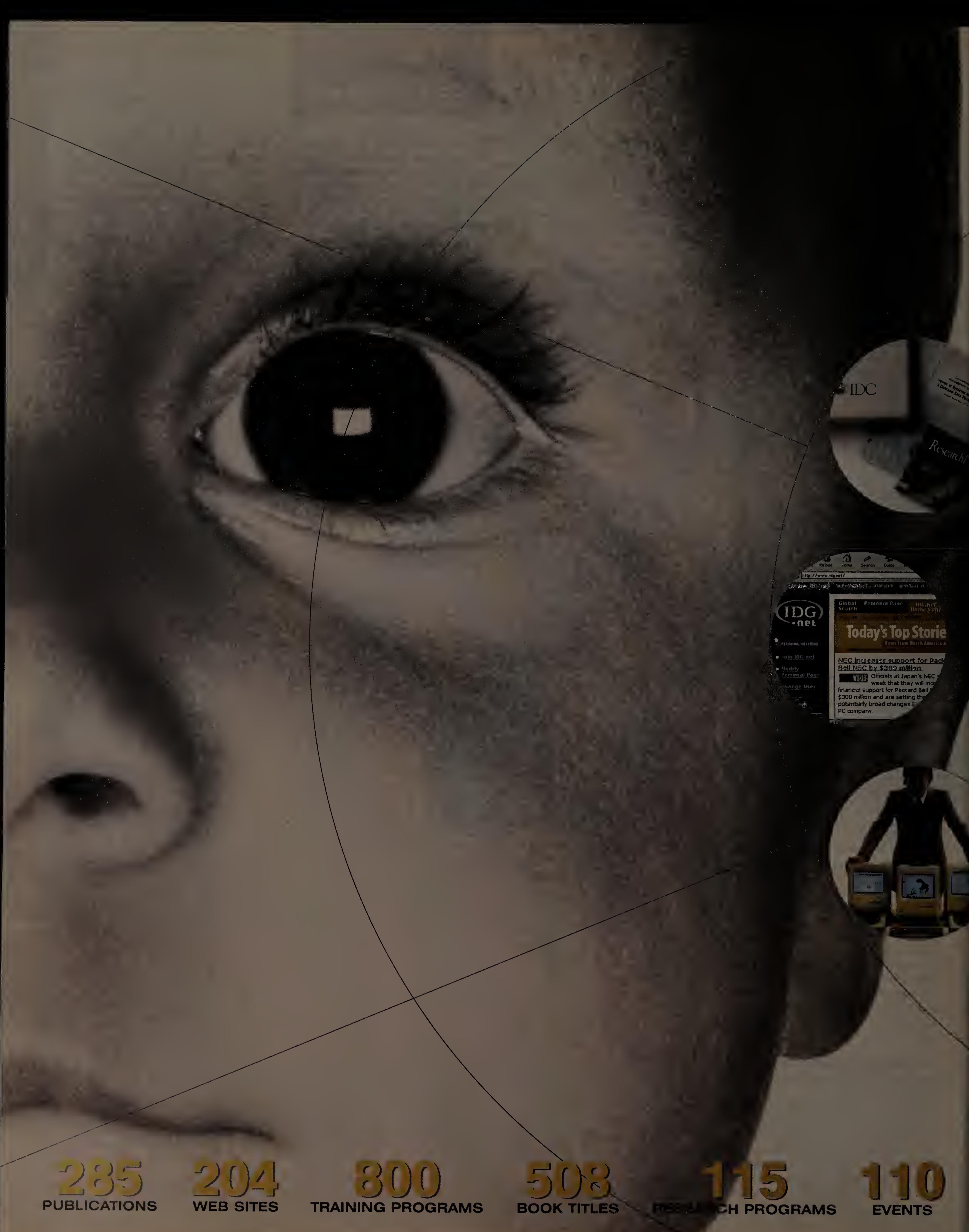

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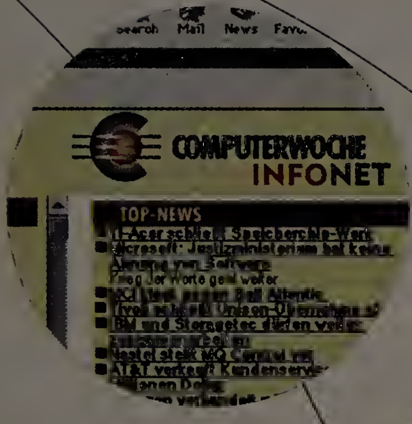

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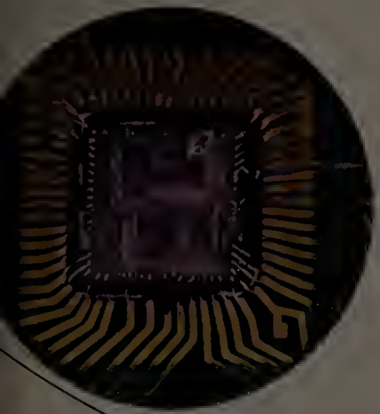

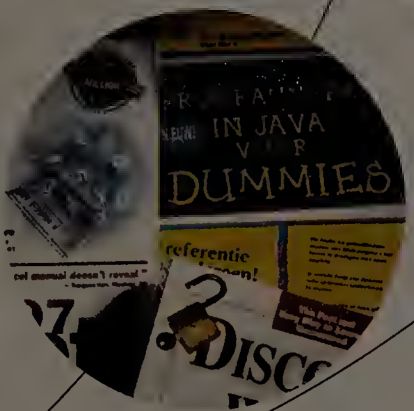

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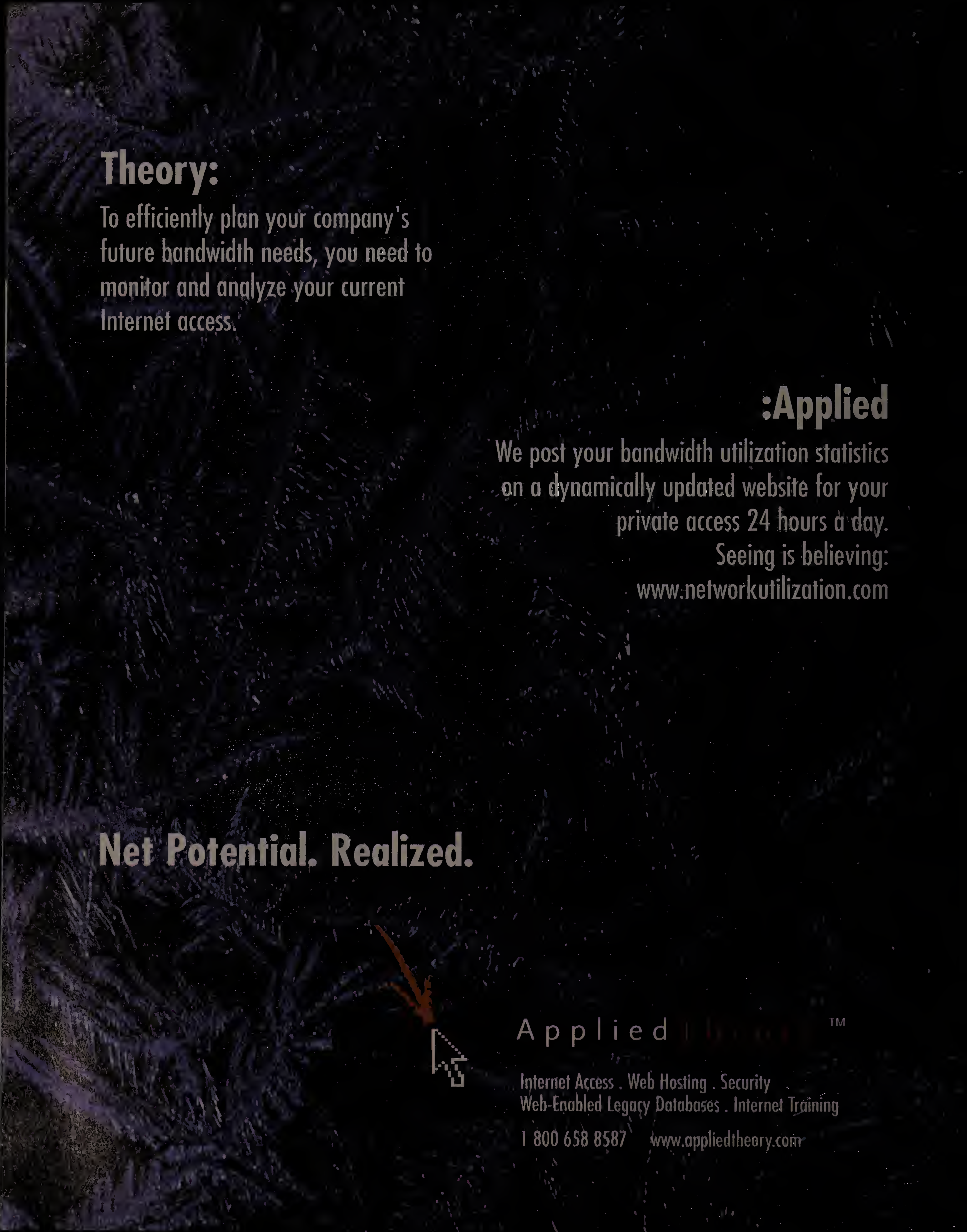

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Making reservations

01/01/2000: WHERE WILL you BE?

D-DAY. GROUND ZERO. BIKINI ATOLL. THE TRENCHES. **Those are the terms IS managers use when they talk about The Deadline – Jan. 1, 2000. So we asked where various IS luminaries and vendor executives plan to be that day**

BRIAN JAFFE

Director of network and client services at a New York company

Because my office building is in Times Square, we probably won't be able to get near the place until the cleaning crews finish shoveling the confetti away. It's just as well; I'm hoping that we'll be confident enough of our prior testing and preparation that we won't have to go to the office on the first. Personally, I'd like to be able to spend the first day of the new millennia (which, technically, it isn't) in quiet reflection, pondering things a bit more weighty than whether or not all the LAN passwords have just expired or whether the automatic purge of E-mail messages of a certain age just caused the mail server to wipe itself clean.

And I hope that — assuming the public telephone network hasn't shut down — we can dial in and see that systems are up and running. On Sunday, assuming the elevators are working, we'll probably go on-site for a more detailed system check. I wouldn't be surprised if Jan. 1 and 2 are actually the calm before the storm. Day 3, when the world returns to work (assuming traffic lights and mass transit systems are running), may turn out to be the real ground zero.

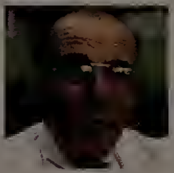
At the risk of one-upping the cobbler's barefooted kids, I'll probably find that the one piece of technology I overlooked in my year 2000 testing is my PC at home.

JOHN RAE

BILL GATES

Chairman and CEO, Microsoft Corp.

I always spend New Year's with my family. As that is also my wedding anniversary, I will no doubt be doing something fun to celebrate with Melinda.



M. LEWIS TEMARES

CIO, University of Miami

Originally, my wife and I thought it would be great to celebrate the millennium's arrival in Vienna. Then I realized I'd have to be back at work sometime in February, and the flights might still be screwed up. So now we'll be at home under the blankets after drinking a quart of scotch — with pagers, cell phones and land phone off, following the wise principle of the ostrich.

ANDREW FILIPOWSKI

CEO, Platinum Technology, Inc.

I plan to be in bed, cuddling with my beautiful family. We'll sleep the day away in a luxurious do-nothing state, watching the world do what it's gonna do. ☐

SCOREBOARD

CONTINUED FROM PAGE 88

De Jager's objective is to force companies "to do what is right by hanging a sword over their heads," he said in a statement on his World Wide Web site, the Year 2000 Information Center (*www.year2000.com*).

Here's how it works:

If someone has firsthand knowledge of a system that fails — either an embedded system, software application or computer platform — and the system manufacturer (which may be his employer) refuses to fix the problem or announce publicly that one exists, he should E-mail that information to de Jager. A submission form is available at de Jager's Web site. Information submitted will be sent (with the identity of the submitter removed) by registered mail to the legal department of the company in question. ☐

Fallbacks, anyone?

Any former Boy Scouts out there in IS?

Some live by the Scout motto, "Be prepared." But when it comes to the year 2000, many organizations are so sure their systems will be ready that they're not even bothering to prepare for the unexpected in the event something breaks down on or after Jan. 1, 2000.

Contingency planning is a secondary concern, The Yankee Group found in a recent survey of year 2000 project managers at 25 companies.

The survey indicated that only nine of the 25 companies — or 36% — had contingency plans in place as of the third quarter last year. And only seven of 25 — or 28% — have identified third-party processors to run systems that can store data in the event of a malfunction in their primary information systems.

Gopi Bala, director of management strategies research at Yankee Group, a

Continued

Staffing 'FAIR WARNING!'

There still may be time to redeploy existing staff or snag decent outsiders. But beware: Allying may mean disaster

By Joseph E. Maglitta

It started with lunches. Jimmy Remegios couldn't help noticing when a big local bank started to invite programmers to informal midday chats about year 2000 opportunities.

"If [programmers] sign with them to work the next three years, they'll pay an extra year right away," says Remegios, director of the department of data systems for the city and county of Honolulu.

Remegios says he hopes cooperation among close-knit information systems chiefs in the Hawaiian city of 900,000 will prevent large-scale labor poaching. "As a government, we're restricted in what we can offer. But as the crunch comes closer and push comes to shove, they could come after our guys," he says.

With less than 24 months until the infamous "crisis" date, edgy optimism about year 2000 staffing is turning into quiet anxiety — and in some cases, panic. And with good reason.

Industry analysts compare 1998 with a game of musical chairs: When the music stops, they warn, organizations that haven't filled year 2000 seats will be out of luck.

"There is little or no time remaining" for companies with extensive MUMPS, APL, CHILL or Algol code to staff and

SCOREBOARD

CONTINUED FROM PAGE 93

Boston-based IT researcher, says companies are showing "a lot of overconfidence" that they'll make the deadline.

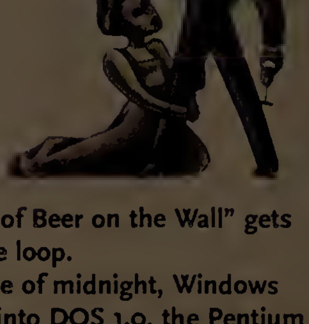
But Bala says more organizations will pay attention to contingency planning this year. He says some are waiting to see how others react.

The Dutch airline KLM Royal Dutch Airlines has taken an extreme contingency plan. It announced in November that it may ground its aircraft or refuse to fly certain routes if year 2000 software problems pose a safety threat.

KLM is urging other airlines to share year 2000 information, problems and solutions, saying that all have a responsibility to society to share their knowledge.
— Rick Saia

A little levity

So what's an impending crisis without a little humor? Have some laughs on us: (From Chris White of New York)



10. IRS demands 100 years of interest from stunned taxpayers.

9. "99 Bottles of Beer on the Wall" gets stuck in infinite loop.

8. At the stroke of midnight, Windows 99 turns back into DOS 1.0, the Pentium V turns back into an 8088 and the Handsome User is left holding a beautiful glass mouse.

7. Internet Movie Database now lists *1901: A Space Odyssey.*

6. Bob Dole's age is erroneously listed with only two digits.

5. Sales of Coca-Cola jump drastically after original cocaine-laced formula becomes legal again.

4. Software engineers point out that since com-

BOB HOLMGREN

A wealth of fresh and seasoned staffers makes Gottschalk's Jeff Kratt confident the company will meet a planned January 1999 deadline.

start year 2000 efforts, says Capers Jones, a noted year 2000 consultant.

According to Jones, 1996 was the last year in which a midsize corporation with a software portfolio of a half-million function points could have finished work on time without extraordinary staffing measures. Those include halting all but emergency and required work, assigning up to 85% of staff, running round-the-clock efforts and partnering with consortia or industry groups.

In his forthcoming book, *The Year 2000 Software Problem* (ACM Press/Addison Wesley), Jones says companies whose applications consist mostly of Cobol still can start this year by assigning 50% or more of personnel to year 2000 projects and using automated search engines.

A recent survey by Cap Gemini International portends the growing staffing shortage. The international researcher/consultancy found that only 20% of 108 companies polled have a year 2000 plan. Yet 70% of those that have begun work have added staff.

Other industry watchers agree that the shortage of candidates to do year 2000 work will get worse. Ann Coffou, who studies year 2000 staffing issues at Giga Research in Norwell, Mass., says the biggest crunch will come when the federal government gets serious about year 2000 fixes.

"Most service providers are going to want that business," Coffou predicts. "And the government will surely take as much help as they can get. Thus, the supply available to private industry will dwindle rapidly."

Many predict that will trigger more poaching by service firms and other IS shops. The bottom line, Coffou says: "Act swiftly."

NO IMMUNITY

Even organizations that got a head start and have adequate staff aren't home free. In fact, year 2000 early-bird pioneers are prime targets for other companies that seek ready-made expertise. Few shops, even in remote areas, are immune.

In Lincoln, Neb., Steve Henderson, the state's deputy administrator of central processing, has noticed head-hunting by a large financial services firm.

"First Data Corp. pretty much drained the IT market in Omaha," Henderson says. "Guess where they have come recruiting? You guessed it."

Millennium mania has been a career boon for many in IS. Take Don Hamson. A 25-year veteran developer, Hamson has worked at a string of glamorous consulting and contracting assignments over the past few years: heart-wave software for Hewlett-Packard Co., network management software at Cabletron, Inc. and U.S. Army Special Forces mission-planning software at Sanders-Lockheed.

Now, year 2000 has opened the doors to a choice consulting job for Hamson at Fidelity Investments. Hamson is helping to create and leverage year 2000 software tools for the Boston-based mutual fund giant. "I've led a charmed existence," he says. Hamson normally won't suffer the three hours of round-trip commuting needed to travel from his home in Manchester, N.H., to Boston.

"But," he adds, "I'll travel to work with cool tools and cool people."

HOPE SPRINGS . . .

If you're among the late-starters, take heart. Experts say there's still hope for companies that act quickly this year.

First, you can still benefit from others' denial of year 2000 problems. Henderson, who lectures around the country on the year 2000 issue, says he's amazed that many firms still show no awareness or concern for the problem. "People just stare at each other like deer in headlights. It's incredible," he says.

Outsourcing also remains a viable option — for now. Demand for service providers has been lower than expected, Coffou says. Large outsourcers such as Ernst & Young LLP and smaller specialty shops are still courting business. Although first- and second-tier project managers are no longer available, a good supply of "worker bees" remains, she says.

Off-shore providers, notably those in India, also can handle work, says Stephanie Moore, a year 2000 specialist at Giga. But unless you've already established a relationship, steer clear, she says.

Farming out code conversion makes sense for shops such as Henderson's that have too many fixed commitments to alter IS schedules. "We went through all the psychological stages: denial, anger, bargaining, grief in-

Fair warning, page 97

puters think it's almost 1900, we technically have to "party like it's 1899," which, frankly, doesn't seem like much fun.

3. Microsoft declares the year 1900 to be the new standard of the "Gatesian" calendar.

2. Jesus shows up late for His Second Coming, blames it on Cobol programmers.

1. Unexpected demand for Cobol programmers results in severe understaffing of fast-food restaurants. ☐

I read the news today, oh boy

Edward Yardeni (*www.yardeni.com*), chief economist at investment banker Deutsche Morgan Grenfell in New York, has considered the "worst-case" scenario of the year 2000. He wrote these hypothetical headlines that we could see in the next three years:

1998
- Economist Sees 40% Odds of Recession on 1/1/00
- Oh, Oh: Fed Auctions Banks That Might Fail in '00

1999
- Credit Card Expires in '00? Leave Home Without It!
- Airlines Cancel Many Flights

2000
- Happy New Year! Who Shut Off All the Lights?
- Parisian Rioters Demand More Candles
- Congress Considers Drafting Programmers

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'FAIR WARNING!'

CONTINUED FROM PAGE 95

to acceptance," he says. "It quickly became clear that our plate was too full."

So in August 1996, the state of Nebraska hired CTA, Inc. in Lincoln to provide 50 consultants to do programming, testing and analysis. A "red flag" clause provides for CTA staffers to remain available until September 2000 for emergency work.

Even though staffing is extra tough in small Midwestern cities, Henderson says, losses in the state's 320-member IS department have been few in the more than two years since year 2000 work began.

"We're working hard to get new people," he says proudly. "We're keeping our head above water."

DO-IT-YOURSELFERS CONTAGION

But the big trend this year is the growing number of companies that have opted to tackle year 2000 fixes in-house. Companies that are lucky enough to have original coders still on staff find that choice especially attractive.

That's true for the city of Honolulu, where Remegios, a 30-year department veteran, has many staffers who've worked there 10 or 20 years. "Everybody out there says they are year 2000 experts," he says. "But there really are no experts. We wrote this code, and we know it better than anyone."

He proudly notes that it costs his staff only about $1 per line to fix code — 50 cents less than Gartner Group, Inc.'s average cost estimate.

Veteran workers also drive year 2000 efforts at Gottschalk, Inc., a Fresno, Calif.-based regional retailer. "If we didn't have these experienced people, we'd be in a lot of trouble," says Jeff Kratt, director of application development. The chain's 11 in-house programmers "intimately know the applications," he says. They even work in the original Cobol instead of IBM's newer Cobol VSE, he notes.

While others scrape around for talent, Kratt has hired four programmer/analysts this year and may hire two more. Another bonus: fresh IS talent who stayed behind when their large corporation relocated recently.

IS jobs are less plentiful in Fresno than in Los Angeles or San Francisco, so "people tend to stay put," explains Kratt, who joined the chain in 1971.

The wealth of fresh and seasoned staffers makes Kratt confident the company will meet a planned January 1999 deadline for compliance on IBM VSE legacy systems and a new IBM 9762. Because Gottschalk programmers began coding four-digit dates in 1980, IS can focus on compliance among third-party vendors, Kratt says.

Still, Kratt isn't taking any chances. Inside his desk drawer hangs a large folder stuffed with promotional materials from Computer Associates International, Inc. and other year 2000 service providers. "Just in case," he says.

At Farmers Alliance Mutual Insurance Co., senior applications programmer John Riekenberg finds himself updating the same policy processing system he helped create 18 years ago for the McPherson, Kan., company. He's helping with an ambitious 18-month project to make legacy insurance systems compliant by November.

Splitting the IBM mainframe into two virtual machines would be tricky enough. But Farmers Alliance recently began the last third of a massive systems replacement project launched in 1990. So in-house teams work side by side on the oldest and newest systems — an IBM 9121-621 and PMS Series 3 client/server system from Policy Management Systems Corp. in Columbia, S.C.

So far, Riekenberg says, a local year 2000 user group has been a helpful source of information about matters such as embedded programming for fax machines and security systems. "The meetings have been more about sharing and ideas. It has not been cutthroat recruiting. But it could get to that."

OLD CODERS NEVER DIE

More companies are also turning to retirees to fill gaps. Senior Staff, a Silicon Valley company that places retired senior citizens on year 2000 projects, reports business is booming. Other companies are contacting their own retirees.

Remegios may face the tough task of luring back three recently retired programmers. They may be needed to help his 40 programmers finish reviewing and fixing 6 million lines of code by November. "I won't be looking at them unless I get real stuck," he says.

Other companies opt for a mix of do-it-yourself and independent contractors. Take Hyundai Motor America. In 1996, the Fountain Valley, Calif., automaker created a two-and-a-half-year plan to make its IBM multiprocessor system year 2000-compliant.

IS director Fred Sipes decided the best approach was a hybrid team of contractors and in-house talent. Sipes and a top application manager led three major development teams. Members included four full-time employees from development, operations and technical support, 20 contractors and part-time contributions from the rest of the 25-member department.

To further ensure that contractors would stay around, Hyundai gave contractors a bonus to stay until the work was done in the second half of 1998. Sipes won't specify the amount or base rate, but he says it started with single-digit hourly bonuses and will increase this year.

Hyundai also held off paying overtime until this year. The reason was to save the extra pay as "an incentive when work became tiring and mundane," Sipes says. IS workers must still show that overtime gets the work done faster, he says. Although some Hyundai workers consider year 2000 work a dead end, Sipes and other IS managers contacted report no real staff opposition.

"I've had no pushback," Sipes says. "People understand that this is just another project."

So far, Hyundai has lost only two contractors to higher pay rates. The project, which will handle 11 major regional field locations and every U.S. Hyundai dealer, is on track for completion in the second half of this year.

LOOKING WITHIN OR WITHOUT?

Outsourcing fix appears faster for year 2000

Many companies are tackling year 2000 work themselves, but rough data from 300 projects between 1987 and 1997 suggests that outside providers do a better job. Adequate spending on testing tools and training appears to close that gap quickly on in-house teams.

Year 2000 service providers had ...

45% higher productivity levels

45% lower defect levels

30% fewer schedule reductions

Source: Capers Jones, *The Year 2000 Software Problem*

YOUR TIME TO SHINE

Despite their reputation as a Fast Train to Obsolescence via Old Code City, year 2000 projects offer some interesting opportunities for IS professionals this year. Why should consulting firms alone profit from the sins of the programming fathers?

Among the possibilities:

MONEY. You have heard the tales of mediocre programmers, retirees, even homeless people earning as much as a mediocre major league baseball player. Return one of those headhunter or consulting firm telephone calls, and that could be you.

POWER. Many companies strapped for year 2000 project managers are drafting junior staffers. "We're not talking about rocket science here," says Fred Sipes, IS director at Hyundai Motor America. With good supervision and knowledge of executables, you're on your way to big bucks and universal admiration.

SMARTS. Boston University and several other schools around the country have developed new curricula around the year 2000. They'll make you a trained millennium-buster in a jiffy.

MORE MONEY. Great-West Life Assurance Co. contracts with its own IS staff for lucrative after-hours year 2000 work. Wonder if that would work at your company? Alternatively, consider asking for a tasty top-hat pay program (*www.year2000.com/archive/delancy.html*).

FREEDOM. Everyone is dying for contractors. If you've thought about jumping to that free lifestyle, now's the time.

Despite being located in competitive Orange County, Calif., Sipes says Hyundai hasn't had a problem attracting top temporary talent. "Over the last 10 years, we've used a lot of contractors," he says. "It's hard to say this and sound modest, but we have a good shop and a good reputation. We've developed a good pool."

If necessary, Sipes says he could probably find more qualified outsiders, but adds, "We really don't want to find out."

PAYOFF

Whether do-it-yourselfers' sizable investment of time, training and energy will pay off is far from clear.

Preliminary research shows that in-house staffs are less efficient than hired guns, Jones says. Organizations with adequate staff and budget to learn new testing and debugging tools should do fine, he says.

Plus, companies that fix the problem themselves must pay what can be a big price for delaying, slowing or even killing other IS projects to finish millennium work, Coffou notes. "But if [year 2000 problems don't] get fixed, the other stuff is a moot point," she says.

Latecomers and early birds alike would do well to follow Henderson's advice on staffing and millennium work in general: "Just keep on swimming." □

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Programmer Analyst: Monday through Friday; 8:00 a.m. to 5:00 p.m.; 40 hours per week; $50,000 annually; Required is a Bachelor of Science degree in Management Information Systems, Computer Science or Electrical Engineering and one (1) year of experience in the position being offered or one (1) year of experience in the related occupation of Systems Analyst. As part of the one (1) year of required experience in the position being offered or in the related occupation, the applicant must have had experience in requirements analysis, design, development, implementation, and enhancement of software systems to support functions of business operations; had experience in designing, developing and implementing software to support different databases, including Oracle, Ingres, Sybase, and Informix; had experience in software development designed to support large databases (3GB or greater); and had experience developing warehousing systems in a UNIX environment using the C programming language. Applies principles of computer science and management information systems in designing and implementing significant enhancements to the company's advanced warehouse management software systems to ensure that the systems are reliable, understandable, maintainable, efficient, and portable. Performs requirements analysis for enhancements to the company's standard software products. Produces system level documentation in accordance with department standards. Develops user documentation suitable to hand over to a technical writer. Performs preliminary designs for enhancements to the software systems. Produces program specifications according to department standards. Participates in estimating software product enhancements. Performs integration testing for functional areas of responsibility. Develops and maintains Perl programs for doing various functions like system startup and shutdown, purging, reporting and make/migration tools. Designs, develops and maintains industry standard screens using C, ESQL and C-Scape. Develops applications which access a Ctree Database using IQ. Develops and maintains radio frequency applications for use with LXE, TELZON, SYMBOL and TEKLOGIC RF terminals. Interested applicants submit two (2) resumes to: DWE-ALC c/o: Mike Brooks, P.O. Box 7972, Madison, WI 53707-7972. Case #C100276. AN EMPLOYER PAID AD.

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Position Title: Vice-President of Information Systems/CIO
Organization: Bethesda Healthcare System
Location: Southeast Florida

The Situation:
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The Candidate:
Successful candidates will be client-focused, results-driven, have a BS or MS degree in a relevant field. Experience is required in the implementation of major health care related information systems, 5 - 10 years of recent hands-on I.S. management. They will have served as a CIO in an integrated system and worked closely with senior-level management and physicians. SMS systems experience is required. Also of importance is previous voice/data, networks and strong project management experience.

Compensation:
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Interested individuals should contact:
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Bethesda Healthcare System
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Please forward your resume and cover letter, specifying position of interest to: **Human Resources Dept. VALLEY HEALTH SYSTEMS 333 West Cork St., Winchester, VA 22601. Fax (540) 665-5320.** EOE M/F/D/V

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OCPS

Senior Programmer Analyst

Programmer Analyst

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Requirements: **Senior Programmer Analyst** - Bachelor's degree in the technology related field from an accredited institution or an equivalent combination of training and experience. Five years of experience in mainframe/distributed Systems Development of which three years must have been in an analytical capacity, with demonstrated project management skills. Experience must have occurred in the past seven years. **Programmer Analyst** - An Associate of Arts from an accredited institution with courses related to technology or an equivalent combination of training and experience. Four years of experience in mainframe/distributed Systems Development. Experience must have occurred in the past six years.

Please submit a letter of interest and resume indicating qualifications specifically related to the position to: Mark Hinson, Director, Personnel Services, Orange County Public Schools, 445 W. Amelia St., Orlando, FL 32801.

Salary Range: A salary will be commensurate with education and experience. **Senior Programmer Analyst** - $39,659 - $55,111. **Programmer Analyst** - $31,418 - $46,870.

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SENIOR SOFTWARE ENGINEER to design, develop, test, implement, maintain and support partially cross-platform application software using C, C++, MFC, Windows SDK API, Win32 API, Visual Basic, ActiveX, COM, Rational Rose and Oracle under Windows 95/NT and Unix platforms; Research and develop enhancements to user interface generation capabilities of GEMBASE 4th generation language; Use Bounds Checker and MS Developer network to solve technical problems; Document software design using Visio, MS Word and Rational Rose's documentation generator; Perform project administration, design review and code review; Interview junior software engineers to verify technical skills, assist and train junior programmers on the development team. Require: M.S. degree in Computer Science or Systems Science with two years of experience in the job offered or in the related occupation of Software Engineer. Salary: $80,000 per year, 8 am to 5 pm, M-F. Apply by resume to: Gary Braun, Director of Human Resources, Ross Systems, Inc., Center Two, 1100 Johnson Ferry Road, Suite 750, Atlanta GA 30342; Attn: Job SB.

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By Jill Vitiello

A RECRUITER'S DAY

What's behind those calls from IS headhunters? *Computerworld* spent the day shadowing Laura McCarthy, one of Washington's top technical recruiters

TIME: 6 A.M.
When Laura McCarthy's alarm sounds at 6 a.m., she puts on a pot of coffee, quickly reviews action items for the day ahead and jumps on the phone. She leaves voice-mail messages for information systems job candidates and the hiring managers who are her customers.

Then she squeezes in a two-mile "power walk," showers, dresses, grabs her briefcase and is off.

TIME: 8:30 A.M.
During the drive to her office at Source Services in Tysons Corner, Va., McCarthy closes a deal on her car phone. She calls ahead to her assistant, Saba Hasan, to relay the victory. By the time McCarthy sprints through the glass double doors of Suite 200 at 8045 Leesburg Pike, she's already put in a couple hours of work.

McCarthy is the top producer for the executive search firm that *Washington Business Journal* ranked No. 1 in July 1997. In just four years at the company, McCarthy has propelled her career from associate to practice manager. Her boss and colleagues say she's done it by working 13-hour days, dazzling her customers with detail-oriented, personalized service and winning over the top IS talent in Washington.

TIME: 9:15 A.M.
To stay on top of her game, McCarthy structures her day around her customers' and candidates' schedules. When she arrives at the office, she gives her co-workers feedback on candidates' resumes and then pours the paperwork on Hasan, the team's administrative assistant.

Then McCarthy puts in a multitasking morning. She straps on her headset and begins her "phone blitz," returning calls, negotiating deals, talking with customers and candidates and relaying information.

TIME: NOON
The pace changes but doesn't slow a bit. McCarthy dashes out for a working lunch at a local restaurant with a customer or a candidate. On other days, she skips lunch and spends the time interviewing candidates who have slipped away from their own offices to meet the recruiter. "The hottest IS candidates are those with excellent technical skills, business and analytical expertise and functional knowledge," McCarthy says.

IS SALARIES IN WASHINGTON

Job title	Washington total compensation	National average
Chief information officer	$82,000	$123,000
Director of IS/MIS	$62,000	$80,000
Project manager, systems and programming	$68,000	$67,000
Senior programmer/analyst	$60,000	$53,000
Systems analyst	$55,000	$51,000
Programmer/analyst	$43,000	$43,000
Computer operator	$25,000	$27,000

Source: *Computerworld's* 1997 Annual Salary Survey

TIME: 2 P.M.
McCarthy and her team are back on the phones, returning calls, scheduling appointments, negotiating offers and scribbling notes for Hasan to input in the database.

McCarthy leads the technical recruiting team mentored by Paul Villella, managing director of Source Services' offices in Washington, Baltimore and Vienna, Va., also known as Tysons Corner. The staff employs approximately 50 recruiters and more than 300 consultants. It is Source Services' leading marketplace.

McCarthy worked as a systems analyst before being lured into the lucrative world of technical head-hunting. She prefers not to discuss her income, which is based primarily on commissions. But Villella, her boss, concedes that successful recruiters can earn six figures, as can senior-level IS professionals or those with skills that are hard to come by in the metropolitan area.

TIME: 3 P.M.
The chatter of 50 recruiters talking on their phones at once reaches a crescendo. Source Services provides recruiting for permanent and temporary employees in various industries, as well as consulting services and administrative staffing, but the lion's share of the company's business is IS recruiting.

As telecommunications and professional services companies have moved into northern Virginia to dominate the economy, they've sopped up most of the rich IS talent pool in the Washington area market.

Prized prey includes IS professionals with experience in C++, Visual Basic, Smalltalk, the Internet, intranets, Cobol, job control language, client/server skills and large-scale application development.

"It's a candidate-driven market," McCarthy says. "As recruiters, we have to move fast. Some candidates don't stay on the market more than one week. I've placed people in 48 hours."

TIME: 4 P.M.
The evening rush hour provides McCarthy with a few hours to catch up on paperwork and electronic mail.

"We generally can't reach people during drive time, so we spend those hours taking care of internal business or meeting candidates," McCarthy says. At 4:45 p.m., she dashes into a staff meeting.

TIME: 5:30 P.M.
In the quiet lobby, McCarthy greets a job candidate with whom she's scheduled an appointment. Source Services' policy is to meet each candidate before the individual's resume is submitted to IS hiring managers.

TIME: 7 P.M.
While the rest of the world is sitting down to dinner, Source Services recruiters are munching king-size Snickers and Kellogg's Corn Flakes and grabbing another cup of coffee from the huge urn in the galley. They call candidates at their homes to make last-minute preparations for interviews the next day or to conduct confidential conversations that candidates can't manage during the workday at their offices.

TIME: 9 P.M.
"Monday through Friday, I live Source," says McCarthy, who spends her 13-hour days dressed in a business suit, "ready to meet candidates and customers at a moment's notice."

The day finally done, McCarthy removes the telephone headset and closes her day planner. After straightening papers on her desk, she switches off her desk light, grabs her briefcase and heads for the parking lot. ☐

Vitiello is a freelance writer in East Brunswick, N.J.

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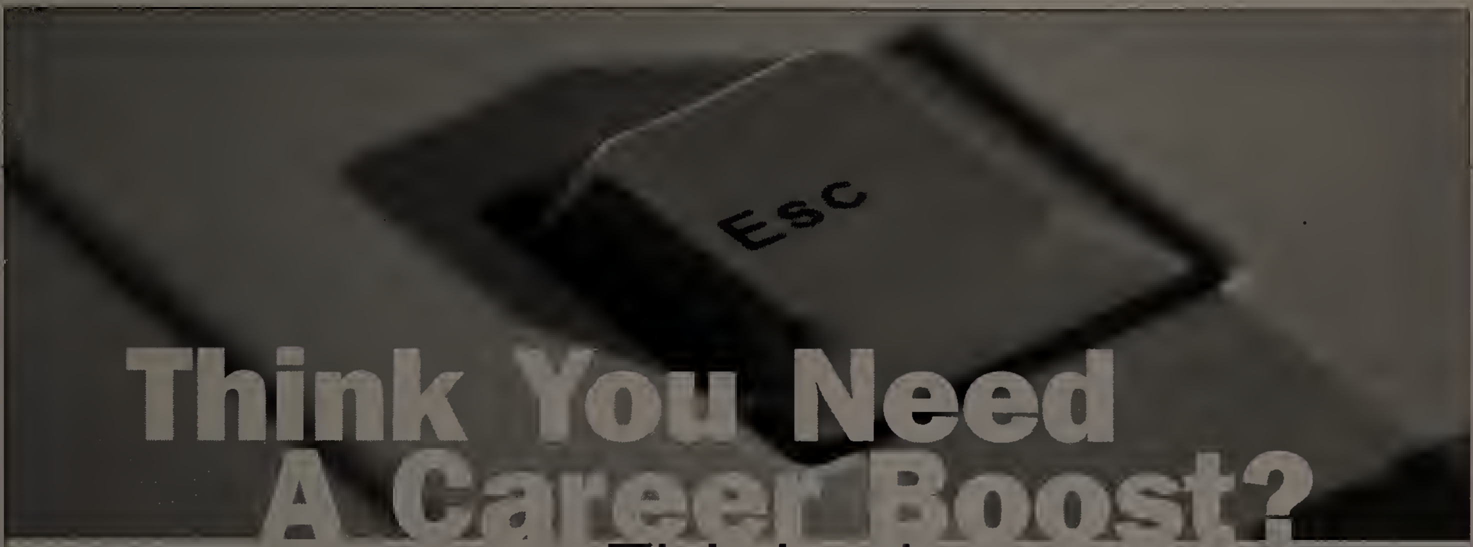

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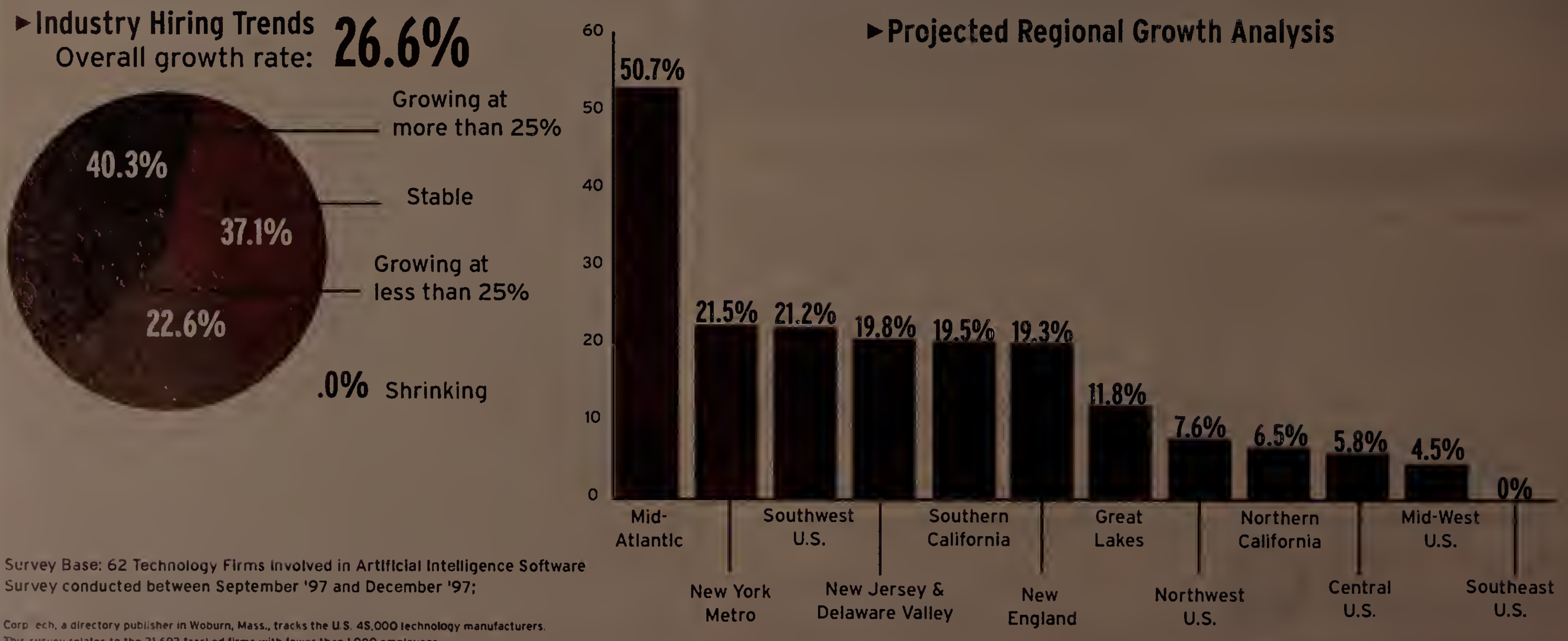

Survey Base: 62 Technology Firms Involved in Artificial Intelligence Software
Survey conducted between September '97 and December '97;

CorpTech, a directory publisher in Woburn, Mass., tracks the U.S. 45,000 technology manufacturers.
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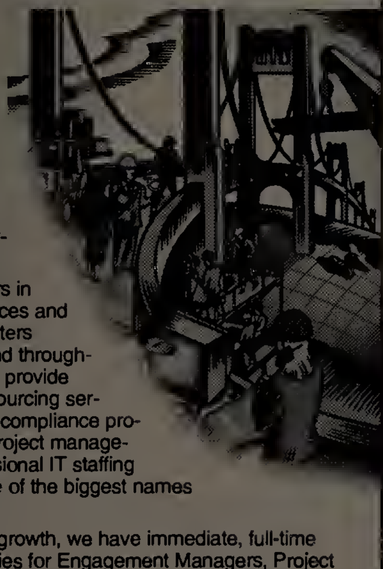

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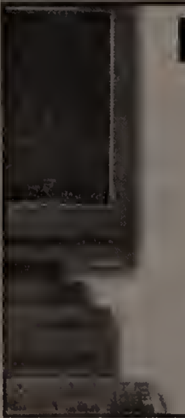

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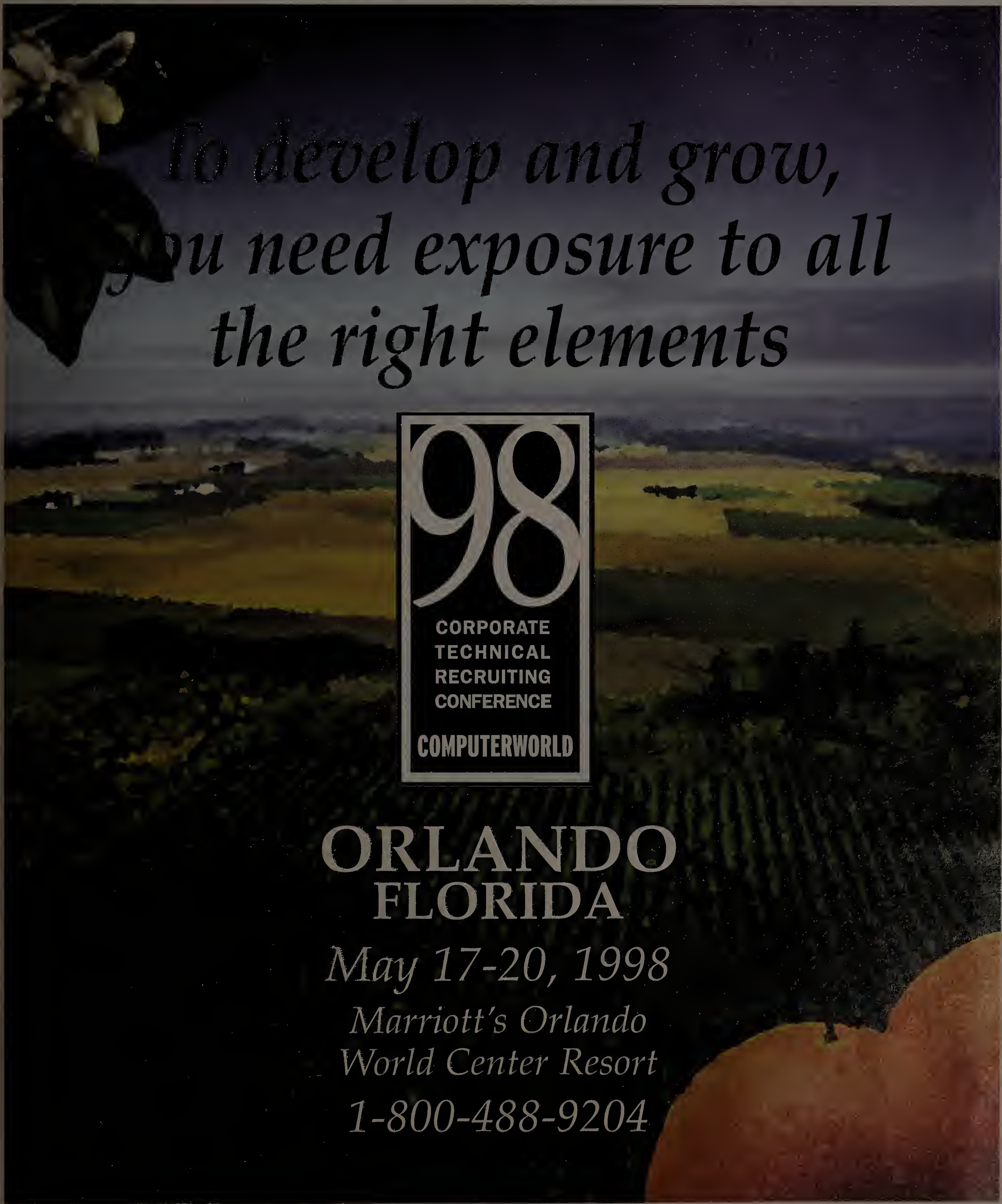

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The Week in Stocks

Gainers / Losers

PERCENT

Gainers		Losers	
IPL Systems Inc.	44.2	SCO Inc.	-26.4
Storage Computer Corp.	36.6	Microage Inc.	-22.1
Racotek Inc.	28.0	Cayenne Software Inc.(L)	-18.8
Micron International Inc.(L)	25.4	Centura Software(L)	-17.5
ObjectShare, Inc.	25.0	Red Brick Systems Inc.	-15.6
Egghead Discount Software	22.6	SCB Computer Tech. Inc.	-14.0
Pinnacle Micro Inc.	20.0	Data General Corp.	-11.9
Comshare Inc.	19.8	Data Race Inc.	-11.7

DOLLAR

Gainers		Losers	
Dell Computer Corp.	8.06	Microage Inc.	-3.31
Sapient Corp.(H)	6.50	BGS Systems Inc.	-3.13
Amazon.com	6.00	Filenet Corp.(H)	-2.56
America On-Line	5.75	SCB Computer Tech. Inc.	-2.38
Computer Horizons	5.75	Inacom Corp.	-2.31
Microsoft Corp.	5.63	Adobe Systems Inc.	-2.13
Excite, Inc.	5.25	Policy Management Sys.(H)	-2.13
Cambridge Tech. Partners	4.75	Data General Corp.	-2.00

INDUSTRY ALMANAC

AT&T makes comeback

Financial analysts are bullish about AT&T Corp.'s financial direction, based on several significant events over the past few months.

Last April, the Basking Ridge, N.J., telecommunications giant's stock price tumbled to lower than $31 per share. But it doubled in price to nearly $64 per share by the end of December.

The key to the company's reversal of fortune was the appointment of C. Michael Armstrong as chairman and CEO in October after another top executive walked out in July, analysts say.

On Jan. 8, Armstrong announced a merger worth $11 billion in stock with Teleport Communications Group, in Staten Island, N.Y., giving AT&T entry into the local voice and data market for lucrative business customers.

"The Teleport deal is a real plus, and Armstrong is showing he's got a strong arm in the industry," says John Rooney, analyst and president of Hornblower & Weeks, in New York.

The Teleport merger pushed Rooney to raise his investor recommendation from a Buy to a Strong Buy. Rooney says he expects Armstrong will follow up with other acquisitions to make AT&T "very strong" in the next 12 months. He says he expects the stock's price to climb 40%, perhaps reaching $80.

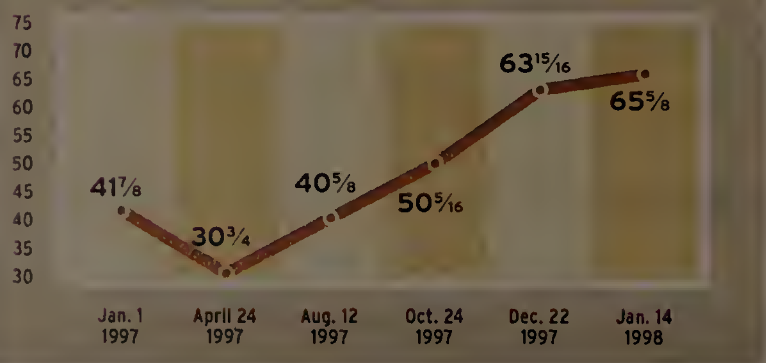
One positive trend for AT&T is that its market share of interstate switched voice and data traffic is on an upward swing from a record low last fall, according to George Reed Dellinger, an analyst at HSBC Washington Analysis, based in Washington.

"The burden is still on the new chairman to perform," Dellinger says. "He's not tested and hasn't done that much. It's good to see someone taking action with Teleport, but whether that's too late [for AT&T] to enter the local market, we'll see."

— Matt Hamblen

GOOD TIMES FOR AT&T

AT&T's stock price has doubled since April, and a recent acquisition has helped even more



Communications and Network Services UP 3.35%

Exch	52-Week	Range		Jan. 16 2 PM	Wk Net Change	Wk Pct Change
COMS	78.25	24.00	3 COM Corp.	33.88	3.38	11.1
AIT	86.25	55.25	AMERITECH Corp.	84.50	3.13	3.8
ASND	80.25	22.00	Ascend Communications	30.25	3.25	12.0
T	65.75	30.75	AT&T (H)	65.38	4.00	6.5
BNYN	5.06	1.19	Banyan Systems Inc.	3.69	0.50	15.7
BAY	41.88	15.38	Bay Networks Inc.	28.81	2.88	11.1
BEL	92.88	56.75	Bell Atlantic Corp.	89.94	1.19	1.3
BLS	58.63	39.38	BellSouth Corp. (H)	58.06	1.56	2.8
BRKT	27.75	9.25	Brooktrout Technology	13.00	0.88	7.2
CS	46.50	12.63	Cabletron Systems (L)	14.38	0.81	6.0
CGRM	21.88	8.63	Centigram Communications	15.63	0.00	0.0
CSCO	60.63	30.19	Cisco Systems Inc.	58.06	2.75	5.0
CMNT	7.00	3.31	Computer Network Tech.	4.31	-0.19	-4.2
DIGI	32.75	18.25	DSC Communications	21.75	-0.88	-3.9
FORE	35.75	10.00	FORE Systems Inc.	16.81	0.88	5.5
GDC	10.75	3.25	General DataComm Inds.	4.38	0.13	2.9
GSX	53.00	36.13	General Signal Networks	39.56	-0.06	-0.2
GTE	52.25	40.50	GTE Corp.	51.06	0.50	1.0
LU	90.75	48.88	Lucent Tech.	75.50	-0.38	-0.5
MADGF	16.13	3.75	Madge Networks NV	4.06	-0.03	-0.8
MCIC	45.00	27.31	MCI Commmunications Corp.	43.94	1.25	2.9
NETM	6.13	2.09	NetManage Inc.	3.06	0.19	6.5
NTRX	6.13	0.63	Netrix Corp.	1.94	-0.25	-11.4
NCDI	16.25	5.88	Network Computing Devices	10.06	0.69	7.3
NWK	22.38	11.25	Network Equipment Tech.	13.56	-0.44	-3.1
NN	69.38	27.25	Newbridge Networks Corp.	29.69	0.00	0.0
NT	56.94	31.06	Northern Telecom Ltd.	42.63	-0.72	-1.7
NOVL	13.00	6.28	Novell Inc.	7.38	-0.16	-2.1
ODSI	19.25	5.19	Optical Data Systems Inc.	7.88	1.25	18.9
PCTL	24.50	5.63	PictureTel Corp.	6.00	0.03	0.5
PTON	3.50	1.03	Proteon Inc.	1.13	-0.09	-7.7
RACO	4.88	1.00	Racotek Inc.	2.00	0.44	28.0
RETX	7.63	3.38	Retix	4.56	-0.31	-6.4
SBC	76.13	49.25	SBC Communications	74.38	2.38	3.3
SFA	24.94	14.25	Scientific Atlanta Inc.	17.00	0.44	2.6
SHVA	21.25	8.06	Shiva Corp.	10.06	0.31	3.2
FON	60.63	39.38	Sprint Corp.	59.38	2.50	4.4
SMSC	18.13	8.00	Standard Microsystems Corp.	9.38	0.63	7.1
USW	47.63	31.13	U S West Inc. (H)	47.63	1.44	3.1
XIRC	31.13	7.50	Xircom	10.06	0.31	3.2
XYLN	37.25	12.38	Xylan Corp.	14.94	-0.63	-4.0

PCs and Workstations UP 6.82%

Exch	52-Week	Range		Jan. 16 2 PM	Wk Net Change	Wk Pct Change
AAPL	29.56	12.75	Apple Computer Inc.	19.25	0.75	4.1
CPQ	79.56	28.50	Compaq Computer Corp.	58.88	1.44	2.5
DELL	103.88	30.00	Dell Computer Corp.	92.81	8.06	9.5
GTW	46.25	19.38	Gateway 2000 Inc.	33.13	0.44	1.3
HWP	72.94	48.13	Hewlett Packard Co.	64.44	0.94	1.5
MUEI	25.38	8.44	Micron International Inc. (L)	11.25	2.28	25.4
NIPNY	74.00	48.63	NEC America	58.63	3.63	6.6
SGI	30.31	10.94	Silicon Graphics (L)	11.56	0.00	0.0
SUNW	53.31	25.88	Sun Microsystems Inc.	44.94	4.25	10.4

Large Systems OFF 0.60%

Exch	52-Week	Range		Jan. 16 2 PM	Wk Net Change	Wk Pct Change
DGN	37.94	14.88	Data General Corp.	14.88	-2.00	-11.9
DEC	53.81	25.00	Digital Equipment Corp.	40.13	3.38	9.2
IBM	113.50	63.63	IBM	105.00	3.88	3.8
MDCD	7.63	2.88	Meridian Data Inc.	3.44	-0.44	-11.3
PRCM	20.13	9.75	ProCom Technology, Inc.	12.50	-1.06	-7.8
SQNT	31.25	14.50	Sequent Computer Sys.	18.00	-0.50	-2.7
TEXM	6.00	2.06	Sequoia Systems Inc.	4.75	0.50	11.8
SRA	60.75	26.88	Stratus Computer Inc.	35.25	-1.00	-2.8
UIS	16.50	5.75	Unisys Corp.	16.00	0.94	6.2

Software UP 0.56%

Exch	52-Week	Range		Jan. 16 2 PM	Wk Net Change	Wk Pct Change
ADBE	53.13	32.50	Adobe Systems Inc.	39.25	-2.13	-5.1
AMSWA	15.63	5.38	American Software Inc.	9.63	0.63	6.9
APLX	26.50	3.13	Applix Inc.	5.75	0.56	10.8
ARSW	53.25	17.00	Arbor Software	37.25	2.38	6.8
ADSK	51.13	28.25	Autodesk Inc.	38.13	1.75	4.8
BGSS	38.00	24.00	BGS Systems Inc.	32.13	-3.13	-8.9
BMCS	71.25	39.63	BMC Software Inc.	62.94	2.31	3.8
BOOL	35.25	19.63	Boole and Babbage	29.00	0.31	1.1
BORL	12.19	5.88	Borland Int'l Inc.	6.94	-0.47	-6.3
BOBJY	15.63	6.63	Business Objects	10.50	0.31	3.1
CAYN	6.25	0.94	Cayenne Software Inc. (L)	1.22	-0.28	-18.8
CNTRC	5.87	0.87	Centura Software (L)	1.03	-0.22	-17.5
CHKPF	50.50	16.25	Checkpoint Software	14.19	-1.44	-4.0
COGNF	35.00	17.63	Cognos Inc.	21.75	0.13	0.6
CA	57.50	24.88	Computer Associates	50.19	-1.00	-2.0
CPWR	39.50	13.13	Compuware Corp.	36.25	2.00	5.8
CSRE	18.75	4.25	Comshare Inc.	9.44	1.56	19.8
COSFF	8.25	1.40	Corel Corp.	1.97	-0.03	-1.6
DWTI	6.63	2.25	Dataware Technologies Inc.	2.88	-0.25	-8.0
FILE	35.50	9.50	Filenet Corp. (H)	31.75	-2.56	-7.5
FRTE	38.25	4.94	Forte Software (L)	5.19	-0.56	-9.8
FTPS	8.38	1.50	FTP Software Inc.	1.94	-0.13	-6.1
HUMCF	54.25	22.00	Hummingbird Comm. Ltd.	32.50	-0.25	-0.8
HYSW	46.00	13.00	Hyperion Software Corp.	34.25	2.13	6.6
IRIC	20.00	11.75	Information Resources	13.00	-0.41	-3.0
IFMX	24.38	4.00	Informix Corp.	5.22	0.06	1.2
INGR	14.19	6.25	Intergraph Corp.	9.75	0.44	4.7
LEAF	4.00	0.81	Interleaf Inc.	3.25	-0.25	-7.1
ISLI	21.25	6.25	Intersolv Inc.	18.25	1.13	6.6
INTU	41.81	20.88	Intuit Inc.	37.13	0.75	2.1
TLC	20.50	5.50	Learning Co. (The)	15.25	0.38	2.5
LGWX	12.88	4.13	Logic Works	7.88	-0.50	-6.0
MAPS	14.25	7.88	MapInfo Corp	12.00	0.63	5.5
MATH	5.13	2.19	MathSoft	3.41	0.38	12.4
MENT	13.13	6.50	Mentor Graphics	8.44	-0.25	-2.9
MIFGY	43.50	15.63	Micro Focus (H)	43.25	0.19	0.4
MGXI	10.63	4.00	Micrografx Inc.	9.19	-0.06	-0.7
MSFT	150.75	84.25	Microsoft Corp.	134.88	5.63	4.4
OBJS	2.25	0.44	ObjectShare, Inc.	0.78	0.16	25.0
ORCL	42.13	17.75	Oracle Corp. (L)	19.63	0.38	1.9
PMTC	64.25	37.50	Parametric Technology	48.00	0.63	1.3
PSFT	39.50	15.31	Peoplesoft	34.38	1.56	4.8
PTEC	19.75	11.00	Phoenix Technologies	12.25	0.06	0.5
PSQL	13.63	6.50	Platinum Software	10.88	0.75	7.4
PLAT	30.81	10.25	Platinum Technology	26.06	1.19	4.8
PRGS	25.25	12.63	Progress Software Corp.	22.69	0.03	0.1
RNBO	30.00	13.75	Rainbow Technologies Inc.	25.69	-1.06	-4.0
REDB	26.50	5.00	Red Brick Systems Inc	6.44	-1.19	-15.6
ROSS	9.13	1.75	Ross Systems, Inc.	3.09	-0.16	-4.8
SAPE	67.25	30.00	Sapient Corp. (H)	67.25	6.50	10.7
SCOC	8.63	3.13	SCO Inc	3.41	-1.22	-26.4
SDTI	44.38	21.00	Security Dynamics Tech.	37.75	1.06	2.9
SOTA	18.00	8.88	State of the Art	16.00	0.25	1.6
SSW	41.69	27.25	Sterling Software Inc	38.88	0.00	0.0
SDRC	30.00	15.25	Struct. Dynamics Research	23.88	-0.25	-1.0
SYBS	23.63	8.19	Sybase Inc. (L)	9.00	0.31	3.6
SYMC	27.75	12.00	Symantec Corp.	23.38	1.81	8.4
SNPS	47.13	21.75	SynOpsys	34.38	3.13	10.0
SSAX	17.63	3.88	System Software Assoc.	9.38	0.00	0.0
SYSF	18.00	4.06	Systemsoft Corp.	5.94	0.44	8.0
TRUV	5.19	1.50	Truevision Corp	2.75	0.25	10.0
VMRK	11.75	5.75	VMark Software Inc.	7.38	-0.69	-8.5
WALK	18.25	10.50	Walker Interactive Systems	13.13	-0.38	-2.8
WALL	29.13	11.31	Wall Data Inc.	14.25	0.19	1.3
WANG	25.00	16.00	Wang Laboratories Inc.	22.19	0.63	2.9

Internet [illegible]

Exch	52-Week	Range		Jan. 16 2 PM	Wk Net Change	Wk Pct Change
AMZN	66.00	15.75	Amazon.com	58.63	6.00	11.4
AOL	93.19	33.25	America On-Line	92.31	5.75	6.6
ATHM	30.63	16.63	At Home Corp.	26.25	4.19	19.0
CSRV	14.56	8.88	Compuserve Corp.	12.63	0.56	4.7
EDFY	22.13	8.88	Edify Corp.	16.63	-0.13	-0.7
XCIT	37.75	7.50	Excite, Inc.	37.75	5.25	16.2
SEEK	14.50	4.38	Infoseek Corp.	11.88	1.50	14.5
LCOS	42.00	11.19	Lycos Inc.	36.38	3.38	10.2
NETC	25.00	7.88	Netcom On-Line (H)	23.63	-0.63	-2.6
NSCP	49.50	17.00	Netscape Comm. Corp. (L)	17.50	-0.75	-4.1
OMKT	17.38	6.50	Open Market Inc.	11.25	0.50	4.7
PSIX	10.88	4.25	PSINet	6.19	-0.25	-3.9
QDEK	6.31	1.19	Quarterdeck Corp.	2.16	0.22	11.3
RAPT	23.50	8.88	Raptor Systems	12.19	-0.19	-1.5
SCUR	14.81	4.75	Secure Computing Corp.	10.00	-0.88	-8.0
SPYG	14.13	4.06	Spyglass Inc.	5.75	-0.25	-4.2
YHOO	71.00	13.94	Yahoo! Inc.	66.25	3.38	5.4

Semiconductors [illegible]

Exch	52-Week	Range		Jan. 16 2 PM	Wk Net Change	Wk Pct Change
AMD	48.50	2.69	Advanced Micro Devices	17.69	-0.44	-2.4
ADI	36.69	20.63	Analog Devices Inc.	26.69	1.06	4.1
CHPS	21.50	7.88	Chips and Technologies	17.38	2.25	14.9
CRUS	17.75	8.00	Cirrus Logic	10.69	0.50	4.9
CY	18.94	7.38	Cypress Semiconductor Corp.	8.94	0.38	4.4
INTC	102.00	62.88	Intel Corp.	75.00	1.94	2.7
LSCC	74.50	39.75	Lattice Semiconductor	43.75	0.63	1.4
LSI	46.88	18.63	LSI Logic Corp.	21.88	1.63	8.0
MCRL	46.88	13.00	Micrel Semiconductor Inc.	28.41	0.41	1.5
MU	60.06	22.00	Micron Technology	29.38	1.50	5.4
MOT	90.50	53.75	Motorola Inc. (L)	55.75	0.25	0.5
NSM	42.88	21.50	National Semiconductor (L)	24.88	1.81	7.9
TXN	71.25	31.06	Texas Instruments	45.38	3.25	7.7
VLSI	38.69	14.88	VLSI Technology	21.25	-0.94	-4.2
XLNX	58.50	28.50	Xilinx	36.75	2.00	5.8
ZLG	28.50	16.88	Zilog Inc. (L)	19.00	0.06	0.3

Peripherals and Subsystems [illegible]

Exch	52-Week	Range		Jan. 16 2 PM	Wk Net Change	Wk Pct Change
ADPT	54.25	19.50	Adaptec Inc. (L)	22.19	0.75	3.5
APCC	34.38	15.25	American Power Conversion	26.63	0.38	1.4
CREAF	29.38	8.63	Creative Technology Ltd.	17.75	1.06	6.4
RACE	22.00	3.00	Data Race Inc.	3.31	-0.44	-11.7
DTM	12.50	7.88	Dataram Corp.	9.06	0.13	1.4
EMC	32.56	15.88	EMC Corp.	29.13	3.50	13.7
EMLX	21.25	13.38	Emulex Corp.	14.25	-1.25	-8.1
ESCC	35.88	22.00	Evans and Sutherland	27.75	0.50	1.8
EXBT	16.50	5.63	Exabyte	7.53	0.28	3.9
IISLF	2.63	0.94	Intelligent Info. Systems	1.06	-0.06	-5.6
IOM	16.75	7.06	Iomega Corp.	12.19	0.19	1.6
IPLS	2.81	0.94	IPL Systems Inc.	1.94	0.59	44.2
KMAG	35.38	13.38	Komag Inc. (L)	14.06	0.00	0.0
MTSI	34.88	13.00	MicroTouch Systems Inc.	13.75	-1.00	-6.8
MTIC	17.88	3.25	MTI Technology Corp.	12.38	0.38	3.1
PNCL	7.81	0.13	Pinnacle Micro Inc.	0.19	0.03	20.0
AQM	23.06	2.25	QMS Inc.	2.81	-0.06	-2.2
QNTM	43.25	14.63	Quantum Corp.	19.63	0.75	4.0
RDUS	0.81	0.19	Radius Inc.	0.41	-0.03	-7.1
SEG	56.25	17.75	Seagate Technology (L)	18.88	0.63	3.4
SOS	19.63	5.00	Storage Computer Corp.	8.63	2.31	36.6
STK	67.00	33.25	Storage Technology	62.88	2.31	3.8
TEK	46.44	32.19	Tektronix Inc.	39.63	0.56	1.4
WDC	54.75	14.50	Western Digital Corp.	16.19	0.44	2.8
XRX	88.00	54.38	Xerox Corp.	71.06	1.13	1.6

Services [illegible]

Exch	52-Week	Range		Jan. 16 2 PM	Wk Net Change	Wk Pct Change
AMSY	27.75	15.75	American Mgmt. Systems	22.88	2.88	14.4
ANLY	36.50	14.19	Analysts Int'l	28.38	-0.63	-2.2
AUD	62.69	26.56	Auto Data Processing	59.88	0.88	1.5
CATP	43.63	21.25	Cambridge Tech. Partners	42.50	4.75	12.6
CEN	47.75	29.50	Ceridian Corp.	45.88	-0.13	-0.3
CDO	34.13	18.38	Comdisco Inc.	32.31	1.00	3.2
CPU	38.00	14.75	CompUSA Inc.	30.00	0.75	2.6
CHRZ	46.50	16.75	Computer Horizons	45.75	5.75	14.4
CSC	88.50	57.88	Computer Sciences (H)	86.88	2.63	3.1
TSK	49.38	16.63	Computer Task Group	37.75	2.56	7.3
EGGS	11.13	3.63	Egghead Discount Software	7.13	1.31	22.6
EDS	49.63	29.56	Electronic Data Systems Corp.	42.00	-1.75	-4.0
ICO	39.63	19.75	Inacom Corp.	25.88	-2.31	-8.2
INEL	8.13	2.25	Intelligent Electronics	5.00	-0.13	-2.4
KEA	41.50	14.63	Keane Inc.	38.81	1.50	4.0
MICA	29.75	11.69	Microage Inc.	11.69	-3.31	-22.1
PAYX	51.75	25.63	Paychex	48.00	0.25	0.5
PMS	70.69	41.50	Policy Management Sys. (H)	65.88	-2.13	-3.1
REY	30.63	13.75	Reynolds and Reynolds	17.75	-0.50	-2.7
SCBI	22.25	10.69	SCB Computer Tech. Inc.	14.63	-2.38	-14.0
SEIC	44.50	18.75	SEI Corp.	42.56	3.94	10.2
SMS	66.81	36.75	Shared Medical Systems	62.13	1.00	1.6
SSPE	33.50	10.00	Software Spectrum Inc.	12.38	0.31	2.6
SDS	31.44	18.50	Sungard Data Systems	29.00	-0.38	-1.3
VST	22.38	6.50	VanStar Corp.	11.81	-0.63	-5.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Ice freezes out IT

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most of the outlying communities were still without power.

"Most of our problem was just getting people in," said Richard Cox, a project manager at Air Canada in Montreal. "We had a very high absentee rate. A lot of our technical support came to a screeching halt for a solid week." To cover for the number of employees trapped at home, Cox set up a 24-hour coverage plan for the remaining staff to oversee Air Canada's applications and to make sure company operations ran smoothly across the country, even if Montreal's Dorval Airport was socked in.

The big chill

- Hydro Quebec estimates that 30,000 utility poles and 300 transmission towers toppled in Quebec during the storm
- Officials estimate that nearly 80% of Quebec's homes rely on electric heat
- Bell Canada said it had to reconnect 10,000 lines in the Ottawa area
- With telephone lines down, there was a 60% increase in cellular phone usage in the Northeast, according to Bell Atlantic Mobile
- In Maine, 15 generators were stolen from Bell Atlantic switching stations, causing temporary outages

ASSOCIATED PRESS

IBM Canada closed its Bromont, Quebec, plant, which assembles most of the chips IBM sells. IBM wanted to save electricity in the fragile power grid and protect its 2,000 employees, most of whom live in communities that were blacked out.

The Inspector Generale for Financial Institutions, a Canadian government agency, shifted some of its computer processing to its Quebec City headquarters because its Montreal offices had been closed since Jan. 9, a spokesman said.

Hydro-Quebec, the province's power utility, doubled the number of technical staff on duty to maintain its computer network, which is crucial to tracking repair progress and customer service calls.

CLIFF KUCINE

Kennebec Valley Health CIO Bill Terrell: "You can always use more UPSs"

Many businesses relied on a combination of uninterruptible power supplies (UPS) and diesel generators to ensure that the computers kept running even when the power lines toppled.

At Kennebec Valley Health in Augusta, Maine, such a scheme worked well, though the hospital's Waterville, Maine, offices didn't have enough UPSs in place to keep all its servers running, said Bill Terrell, Kennebec's chief information officer. That put a crimp in computer applications, Terrell said, but the hospital had power. Medical staff were able to provide normal care and get caught up on related computer work when the power came back on.

EDWARD GAJDEL

"Most of our problem was just getting people in," says Air Canada's Richard Cox

Other companies weren't so lucky. Five Canadian firms opted to run their operations at Comdisco, Inc.'s disaster recovery sites in Montreal, Toronto and New Jersey. Seven other companies put Comdisco on alert status, said an official of the Rosemont, Ill., disaster recovery firm.

The long outages resulted in breakdowns and a shortage of parts for the many ride-through diesel generators that companies depend on for power. The generators are typically designed to run for a couple of days, not a couple of weeks.

At Domco, Inc., a floor coverings maker in Farnham, Quebec, backup generators failed after three days. Closed roads and the loss of all telephone service meant Domco's headquarters was cut off from its two other plants in the U.S. So IT staff switched operations to SunGard Data Systems, Inc.'s disaster recovery site in Philadelphia. But Domco's U.S.-based plants also had to shut down computer operations for three days until the hot site was online, because order and shipping applications are normally centrally managed from Farnham's AS/400.

Domco, like many other firms in the region, had a disaster recovery plan in place but hadn't taken considered an ice storm.

"You can plan for a disaster when a building is destroyed, but we never figured on a disaster where we couldn't communicate with our Farnham offices" via roads, phone lines, network lines or cellular connections, said Guy Chamberland, Domco's IT director. □

Net cuts through

Rescue workers in upstate New York and Vermont were able to ring up New York state disaster relief officials even after conventional phone service was completely cut off by the recent ice storm that has brought the region to a near standstill.

The isolated communities are linked to the state's disaster recovery headquarters via an advanced communications network, the Adirondack Area Network (AAN), that relies on frame-relay and Integrated Services Digital Network (ISDN) communications links.

The system provides direct voice and videoconferencing contact among state officials in Albany coordinating cleanup operations, and hospitals and schools acting as command centers in the outlying communities.

According to the network's developers, combining underground ISDN lines and IP networks that don't use regular phone lines helped to keep the system running, even in places where electricity and phone service had failed.

Most similar high-speed networks use such a strategy, but AAN's community-oriented effort and focus on an area with limited infrastructure is a departure from the norm. Because of its current geographic limits, the network won't be used for more distant areas in New England and Canada, which were also hard hit by the storm.

At press time, state officials still were relying on the AAN to contact workers in some areas. — Tim Ouellette

Oracle jumps into report market

By Craig Stedman

ORACLE CORP. is jumping into the market for general-purpose reporting software that lets end users pluck analytical reports off their corporate intranets.

Oracle this week will announce plans to turn the report server embedded in its Developer/2000 development tool into a stand-alone product for centrally building and distributing reports. End users could then read the documents — for example, regional sales figures or a corporate spending forecast — from World Wide Web browsers or Windows PCs.

Vendors such as Seagate Technology, Inc., in Scotts Valley, Calif., and Actuate Software Corp., in San Mateo, Calif., last year released Web-enabled reporting tools [CW, July 28]. Like those products, Oracle's report server can handle data from multiple sources. But Oracle officials said the server works best with the company's own databases.

Users previously "had to code like crazy" to build reports with the server in Developer/2000, said Thor Heinrichs-Wolpert, a technical architect at Echidna Systems Corp. in Victoria, British Columbia. But development wizards and new drag-and-drop features that were added two months ago made the report server much more user-friendly, Heinrichs-Wolpert said.

UPGRADE

Echidna, a systems integrator, is building a series of Oracle-based geographic applications for the province of British Columbia's Ministry of Environment, Lands and Parks.

Andrew Hanas, systems design manager at Zebra Technologies Corp. in Vernon Hills, Ill., also said the updated report server "is a vast improvement" over earlier versions. Zebra, a maker of bar-code printers, uses the product within Developer/2000 as part of an upcoming implementation of The Baan Co.'s application suite.

But Oracle still needs to beef up the report server's support for tuning performance and managing report distribution to large groups of users, said Dave Kelly, an analyst at Hurwitz Group, Inc. in Framingham, Mass. The stand-alone tool, Oracle Reports 3.0, is due to ship late this month. The product costs $2,995 per developer and $195 for concurrent end-user licenses, said Oracle officials, in Redwood Shores, Calif. □

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COMMENTARY

Damned if you lead, damned if you don't

Allan E. Alter

Just who are you supposed to be? Gen. Patton or Jeeves the butler? IS managers are getting an earful lately about leadership — from consultants, executives and the press — and are snagged between two contradictory roles: the leaders they're now supposed to be and the service mentality they've always had. IS and line managers are confused, even soured, about IT leadership.

What separates the IT leader from the IT manager? The pundits keep stressing strong values, inspiring interpersonal skills — and the ability to think and act like a businessperson. That means thinking strategically and understanding your business, markets and customers. Being a leader includes go-get-'em actions: spotting and seizing business opportunities and increasing shareholder value and profits.

That's all important, but the list has a giant blind spot. It leaves out something solid IS professionals feel deep in their bones: that the primary job of IS is to serve the business.

Ask IS managers, from supervisors to CIOs, and they'll tell you their role is to enable the business to achieve its goals through IT. Good IS organizations have a deeply ingrained service mentality. IS managers may want to participate in business decisions; they sure want line managers to better understand IT. But ultimately, the CEO and top line management must call the tune, and IS must dance to it.

And however much CEOs bellyache about the lack of IS leadership — a common complaint, according to leadership guru Noel Tichy [CW, Dec. 22] — businesspeople still believe IS's No. 1 job is to support the business. If anything, power over IT decisions is passing to the business side. What were once IT decisions — selecting applications, building infrastructure — have become decisions that CEOs, general managers and even boards of directors are expected to make.

Part of the confusion, I'm convinced, is that leadership experts keep holding up CEOs as examples of leadership — visionary CEOs such as GE's Jack Welch and Intel's Andy Grove, who have turned around their companies or conquered their markets. But CEOs are the wrong model for the IT leader. If top IS managers were expected to be that kind of business leader, we'd see electronic-commerce initiatives falling under the aegis of IS instead of line managers. More IS organizations would operate as profit centers. And line managers wouldn't be gaining authority over IT spending.

No wonder, then, that to many IS professionals, leadership remains a vague, uncomfortable concept, like a suit that's three sizes too big. If we want IS managers to act like leaders, we must zero in on what it means to lead and serve a business at the same time. I'm not sure anyone has done that, not even the leadership experts. They have a lot to say about the great CEOs, leadership skills and values, but little about acting like a leader when you are in a support role.

Other support functions — finance, human resources and legal departments — suffer the same problem. For all the lip service paid to the importance of a company's human resources, you don't hear of HR directors who are great business leaders. Those best-selling books on business leadership always profile CEOs, entrepreneurs, factory managers and sales whizzes, never CFOs or other support-function heads.

IS needs real leadership, but leadership will remain an empty buzzword to many IS managers, a term that elicits sighs or snickers, until it takes IS's service role into account. ☐

Alter is Computerworld*'s department editor, Managing. His Internet address is allan_alter@cw.com.*

Few escapes for Netscape

David Moschella

As I watch the losses and layoffs at Netscape these days, I can't help but think that the company could have saved itself a lot of pain if it had just stopped banging its head against the wall. Any wall — either Microsoft's or that of its so-called enterprise friends at IBM, Novell, Sun and so on. Unfortunately, the pain seems likely to continue; neither Netscape nor the walls are moving.

I've been saying since summer 1996 that there were three ways for Netscape to remain a software industry leader:

1. Sustain a significant product edge either through its own efforts or a Microsoft slip-up.
2. Find a rich enterprise partner willing to match Microsoft's freeware strategy and marketing blitz.
3. Get the U.S. government to force Microsoft to charge a reasonable price for Internet Explorer.

Because a major Microsoft product stumble was never more than a long shot, Netscape's real strategic dilemma has always been whether to take on Redmond or the enterprise software crowd. Unfortunately, it has tried to do both, protected only by its idealized banner of "standards."

It didn't have to be this way. If Netscape wanted to fight Microsoft, it needed to make its own Web browsers and servers the Internet software of choice for IBM, Sun, Oracle, Novell, Apple, Computer Associates and anyone else who feared Redmond's rising enterprise power. If it wanted to fight for the enterprise, it should have immediately made its browser free. Impossibly, Netscape continues with both the Microsoft and enterprise campaigns. Thus, while Microsoft grinds away from below, hope for serious enterprise software cooperation has pretty much disintegrated. At IBM, Lotus Notes and Domino have always come first, second and third. Similarly, back when it might have mattered, Netscape turned up its nose at a struggling Novell, apparently worried that too close an association with Microsoft's most recent roadkill might tarnish its high-flying image.

Then, brilliantly, Microsoft bought off Apple. That left only the Unix camp leaders, Sun and Oracle, and a distant CA; those three could do nothing to help Netscape on the desktop. Sadly, as the walls close in, Netscape has mostly dug in its heels, debating whether browsers are important but continuing to push hard on both fronts, even as its own strength was dissipating. At times, the company has appeared to seek refuge in a dream world — hoping that any day now, masses of enterprise customers would come to the rescue. The reality is today's enterprise intranet competition is much more like trench warfare through a long Russian winter.

Netscape can only hope that prosperity lies with Choice No. 3. And unless the feds quickly and dramatically order Microsoft to begin charging for Explorer (and perhaps even pay damages), Netscape's position will likely continue to erode. No wonder Microsoft is now reversing course, trying to soften its bullying and disrespectful attitude toward the U.S. Department of Justice.

In Shakespeare's *Hamlet*, what finally doomed Ophelia was that during her most desperate hour, her family and friends largely turned away, embarrassed by both her open suffering and the guilt of their own complicity. At times, things seem much the same in Mountain View; when support and alliances mattered most, they proved to be an illusion. Now Netscape's best chance is a judicial reprieve. I hope it comes through soon, but I sure wouldn't want to count on it. ☐

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Dispatches & images from the fringes of the electronic frontier

News to ponder

Edison International, parent company of Southern California Edison, had a float with a twist in this year's Rose Parade. The Robot Dog float had solar-powered cellular phones that sent live camera images to Edison's Web site (*www.edisonx.com*) for public viewing. The cellular data transfers worked fine, but as soon as TV announcers mentioned the site, it was swamped by visitors, an official said.

British vendor Danmere has launched the Backer 32 backup system in the U.S. It lets PC users store 4G bytes of data on a standard videotape, using a VCR as the backup device. Backer 32 costs $69 to $89. "It's so obvious, it's been easy to overlook. Almost every home has a tape storage device, the VCR," a spokeswoman said. Backer 32 has a transfer rate of 9M byte/min. "Since most VCRs are built to higher specifications than the average tape backup unit, they are dependable storage devices," she said.

24
2
4
880
80
10
1
San Francisco
280
101
3

VIRTUAL TRAFFIC COPTER

Cable TV viewers soon will be able to check real-time traffic reports before the morning commute. Traffic Check, a service of digital mapping company Etak in Menlo Park, Calif., and Houston-based Metro Networks, is the first automated traffic report for local TV. Metro reporters log the traffic problems in to a database. A server then generates broadcast-quality digital maps that are color-coded to indicate severity.

Poor man's supercomputer

Environmental researchers at Oak Ridge National Laboratory in Oak Ridge, Tenn., needed a powerful supercomputer to analyze billions of bits of landscape data and produce a map of U.S. soil characteristics. But the laboratory's Paragon supercomputer was already booked solid for other tasks. So researchers Forrest Hoffman (left) and Bill Hargrove cobbled together a parallel processing supercomputer using cast-off 486-based PCs. The populist system, with about 32 nodes, has successfully run programs that ordinarily run on the high-class Paragon. In the future, this sort of beat-up-Chevy supercomputer could be used to test and debug new programs before they are run on Cadillac supercomputers.

Inside Lines

Theft wasn't a bad thing after all

No more NEC laptops for Tracey Ullman. The comedian, who posed for NEC ads last year and received a free machine as part of her payment, had the computer "stolen right off my desk," she said. Ullman now uses an Apple PowerBook. "I suppose I should be compatible with the rest of my staff, but I love the Macintosh. Picasso and all that," she explained, referring to one of the stars of Apple's new "Think different" advertisements.

Lights-out operations

Early last week, millions of Quebec residents still struggled with power outages, while businesses in Montreal were asked to stay closed to help preserve the fragile power grid that the province's power utility, Hydro-Quebec, was trying to rebuild. But more than a few people were irked that the huge, luminous sign above Hydro-Quebec's headquarters stayed lit for days while others stayed in the dark. After a public outcry, Hydro-Quebec officials shut the sign off until the end of the crisis.

The best Christmas present of all

Fred Lugano, founder of Lake Construction, in Charlotte, Vt., received his favorite Christmas present in the mail at just the right time. An uninterruptible power supply (UPS) from American Power Conversion, in West Kingston, R.I., arrived the day before he lost power in the ice storm. He was in the dark for more than 100 hours, but his PC and company files remained available the whole time, he said.

Microsoft's helping hand?

O'Reilly & Associates beat Microsoft to the punch in the Windows NT Web server market, drawing the attention of the mighty software maker. "They first were telling us, 'Oh, wow. This is so great. Somebody's doing a Web server on NT. We'll back you. We're going to make you rich and famous,' " recalls Tim O'Reilly, owner of the company. A few months later? "They said, 'Oops, just kidding. We want to do it ourselves,' " O'Reilly laughed.

Channel change

Cabletron Systems will use the channel network it acquired as part of its purchase of Digital Equipment's networking business to move off its direct sales model. Cabletron will continue to provide direct sales and support for its top 600 accounts, but other customers will be offered a channel option. Look for a formal announcement this week. Users interviewed by *Computerworld* were split as to whether they would stay with direct sales and support.

All I need is a Myracle

Ever notice that the names of some people are nice matches for what they do in life? Such as NASCAR driver Lake Speed or former professional hockey player, now Buffalo Sabres' coach, Lindy Ruff. Millennium pessimists can try this one: Jerry Myracle. His job: director of American Express Technologies' Year 2000 Project Office.

Kicking off his speech at last week's Securities Industry Association year 2000 conference, Forrester Research CEO George Colony shared a tale of a fiftysomething Cobol programmer who got squeezed out of a job in the early 1990s, only to reinvent himself as a millionaire consultant in the mid-'90s. After doing some work on the year 2000 problem, the programmer asked a cryogenics company to freeze his body until after the millennium. Next thing he knows, the programmer wakes up and it's 8,000 years into the future — thanks to a date-related problem with the cryogenics system. Suddenly, the prime minister of Earth, who bears a strong resemblance to Bill Gates, appears on a digital screen. "Why am I here?" asks the programmer. "Well, the year 10,000 is only two years away," the prime minister says, "and we understand you know something about Cobol." If you have a story to share, or even a news tip, send it to news editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.

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